ENGINEERING NEWS-RECORD

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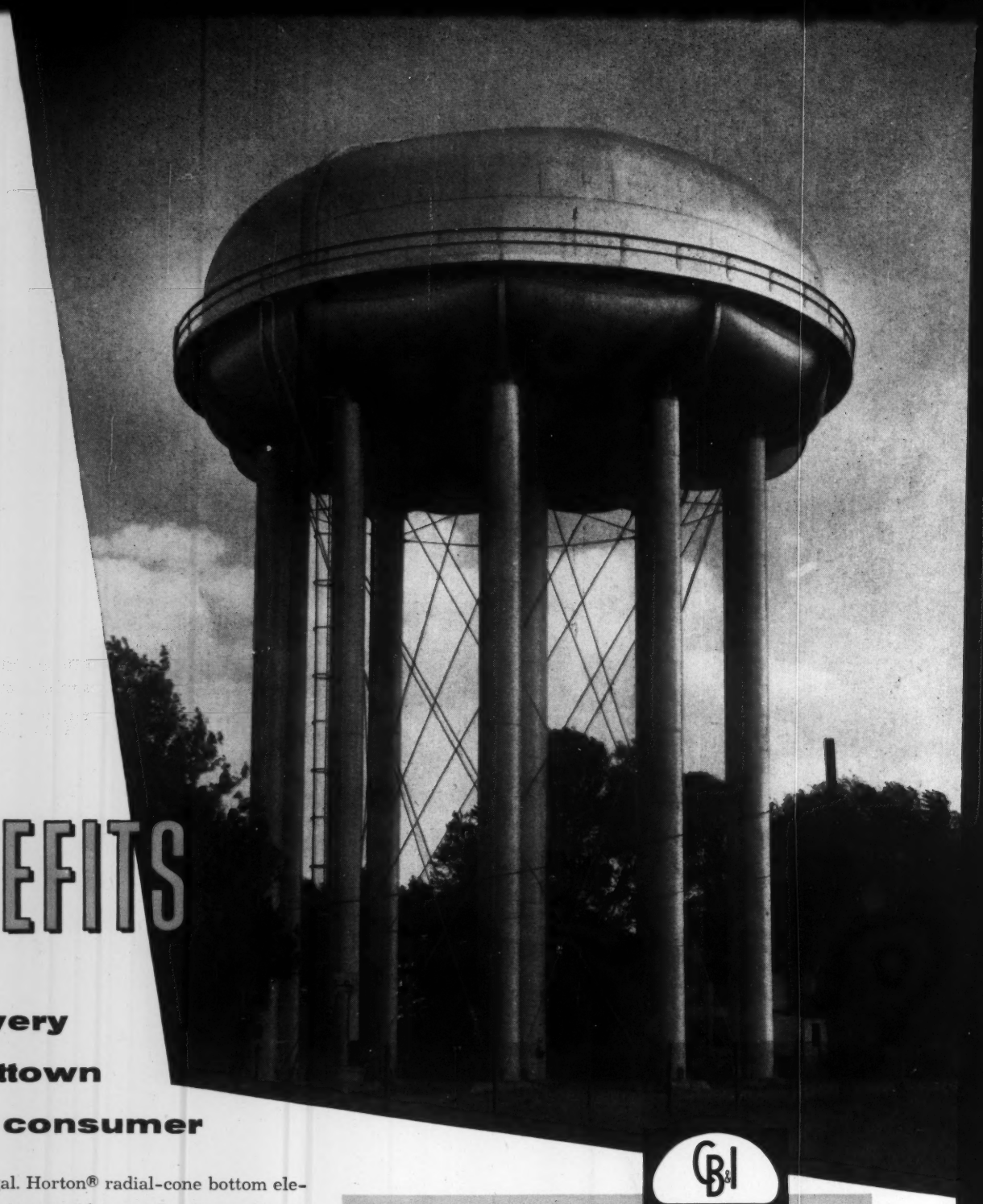

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This 750,000-gal. Horton® radial-cone bottom elevated tank is helping provide every Levittown, Pennsylvania, water consumer with higher, more uniform distribution pressures and a larger reserve of water for emergencies. Serving 9,000 customers with a 60 to 70 gal. per capita consumption per day, peak load periods or emergencies might well strain Levittown's water system without proper reserves.

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Plants in
BIRMINGHAM, CHICAGO, SALT LAKE CITY and GREENVILLE, PA.

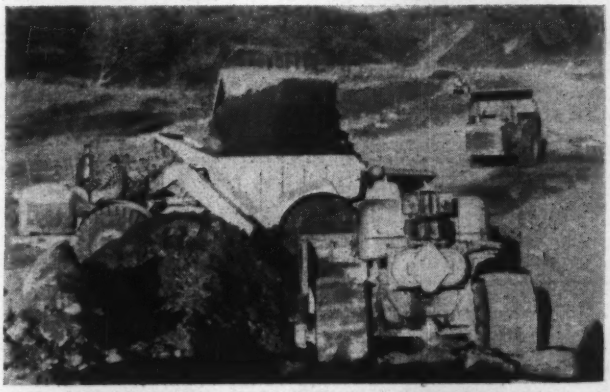
A full three yards or more of dirt and rock are dumped by the HD-15GC Tractor Shovel into the TR-200. Five passes and this wagon was on its way with a heaped 15-yd load.

Contractor Excavates Steep, Rocky Hills with Dozer, Tractor Shovel, Rock Wagons

Lowe Construction Co., of Marion, Iowa, turned to a bulldozer, Tractor Shovel and rock wagon combination when they ran into the problem of cutting down steep, rocky hills on a road job.

This was in connection with the million-yard contract of straightening, widening and relocating 19 miles of State Highway 13 north from Waukon, Iowa, to the Minnesota line. An estimated 200,000 yards of rock had to be handled and Lowe's problem consisted of choosing equipment to best work the extreme cuts on hills too high for excavators.

The Allis-Chalmers dozer could easily make it to the top of each hill. There it benched out the cut in a series of steps, pushing material off the hill for loading at road level. Because of the power and ability of the dozer to handle the rock, little blasting was necessary. Finished slopes range from 1½:1 to ¼:1.



The TR-200's big bowl top made an easy target for the Tractor Shovel. Quick dumping helped get the wagon back in a hurry for the next load.

At the road level, an Allis-Chalmers 3-yd HD-15GC Tractor Shovel was used for loading rock and dirt into two Allis-Chalmers TR-200 Rock Wagons. Because of its compactness and maneuverability, the Tractor Shovel could get into almost inaccessible places and bring out a maximum load. The torque converter enabled the tractor to crowd into the bank steadily throughout loading cycle. Speed of engine and hydraulic pump stayed constant to give responsive, powerful bucket action.

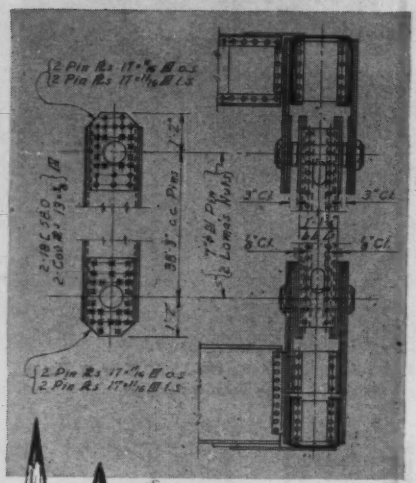
After they were loaded, the rock wagons traveled to the fill section up to 3,000 feet away. The high horsepower-to-yardage ratio of 16 to 1 gave these units fast average travel speeds even on adverse grades and in heavy going.

This four-unit team of Allis-Chalmers equipment handles only one phase of the Lowe Construction Co. contract. Other Allis-Chalmers equipment on the job includes: 18 crawler tractors, 6 pull-type scrapers and one motor grader.

Call on your Allis-Chalmers dealer and discuss with him the many units and combinations available to help you on any job.

ALLIS-CHALMERS
TRACTOR DIVISION — MILWAUKEE 1, U. S. A.

a vital detail

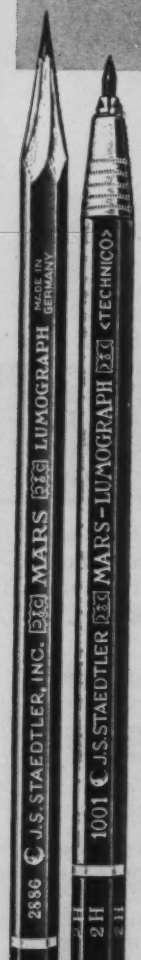


Engineers: Parsons, Brinckerhoff, Hall & Macdonald

This detail of a truss hanger joint for the Sunshine Skyway across Tampa Bay at St. Petersburg, Florida, permits the span to absorb deformations caused by temperature changes, variations in weight of traffic and other causes—a detail vital to the success of the project.

Another detail which top-flight engineers consider vital is the selection of proper tools—that's why so many use the Mars-Lumograph. They rate Mars-Lumograph imported drawing pencils and leads perfect for every step of the job, whether detailing or making working drawings.

Get imported Mars-Lumograph pencils or Mars-Technico push-button lead holder and drawing leads. You will be glad you did.



The 2886 Mars-Lumograph drawing pencil, 19 degrees, EXEXB to 9H—$1.50 per dozen—less in quantity. The 1001 Mars-Technico push-button lead holder—$1.50 each—less in quantity. 1904 Mars-Lumograph imported leads, 18 degrees, EXB to 9H—$1.20 per doz., less in quantity.

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CONTENTS ON PAGE 17

Waldo G. Bowman

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Robert F. Boger

Publisher

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PHOTO COURTESY WORTHINGTON CORPORATION, HARRISON, N.J.

Chrysler High-Speed Power and Fluid-Coupling protection ready this mixer for big season ahead

"Guestimates" differ as to how big a year lies ahead in building. But we do know that public projects, commercial and home construction will set records in practically every part of the country. And from that we can logically assume that transit mix truck operators will be among the busiest people in the nation.

By the same token, engines powering transit mixers must deliver top-performance on a scale never before approached. Wear and tear on engines, transmissions and equipment will be tremendous . . . "down time" will be avoided like the plague. Most manufacturers have wisely prepared equipment for sustained top performance. They have powered with power-proved Chrysler Industrial Engines and are ready for the big job ahead.

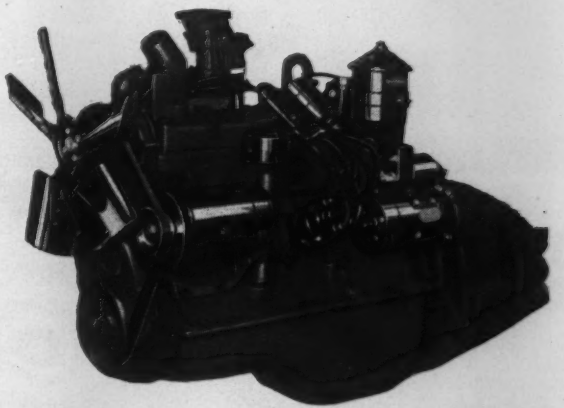
Pictured here is the Worthington Model LO 4½ Yd. Transit Mixer equipped with stationary hopper pouring footing for a commercial building in Ohio. While the compact Chrysler Ind. 30 Engine is placed immediately behind truck cab, drum rotation and drum speed may be controlled from either end of running board. This model is designed for fast charging and discharging.

Between the Chrysler Ind. 30, 230 cubic inch displacement engine, and the Worthington heavy-duty single lever operating transmission is a Chrysler gyrol Fluid Coupling. In this way Worthington protects driving and driven members from wear and tear imposed by shock loads, adds materially to clutch and transmission life.

When lightweight, high-speed, high-output power in a small, compact engine is indicated, check the Chrysler Industrial Engine Line, 230 to 413 cubic inch displacement. And remember, Chrysler Industrial Engines are not expensive. Production-line methods adapted to specialized industrial engine building provide custom-built engines at mass-production prices.

See a Chrysler Industrial Engine Dealer or write:
Dept. 931, Industrial Engine Division, Chrysler Corporation, Trenton, Michigan.

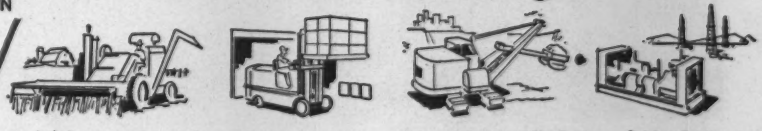
CHRYSLER INDUSTRIAL 30 ENGINE
—230 CUBIC INCH DISPLACEMENT



CHRYSLER *Industrial Engines*

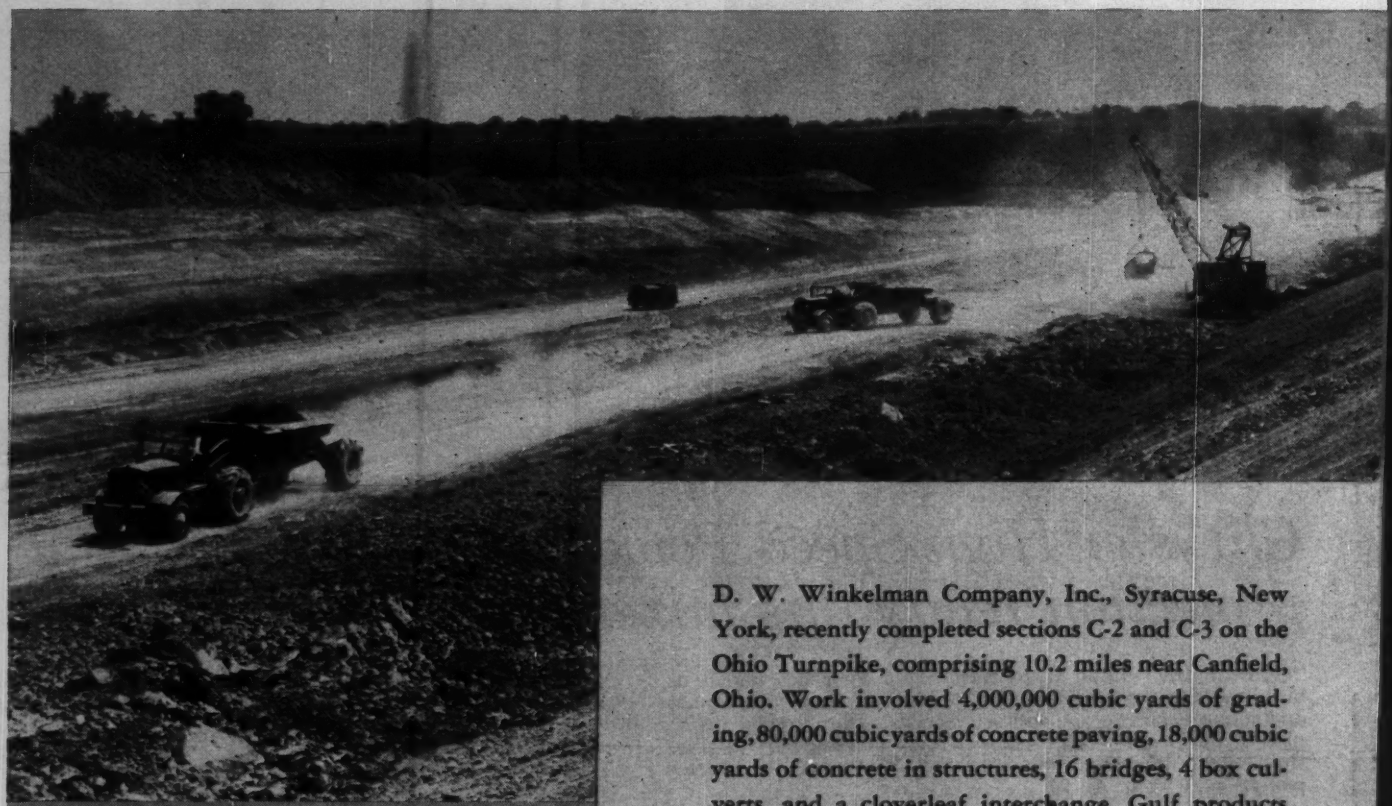
INDUSTRIAL ENGINE DIVISION • CHRYSLER CORPORATION

HORSEPOWER WITH A PEDIGREE

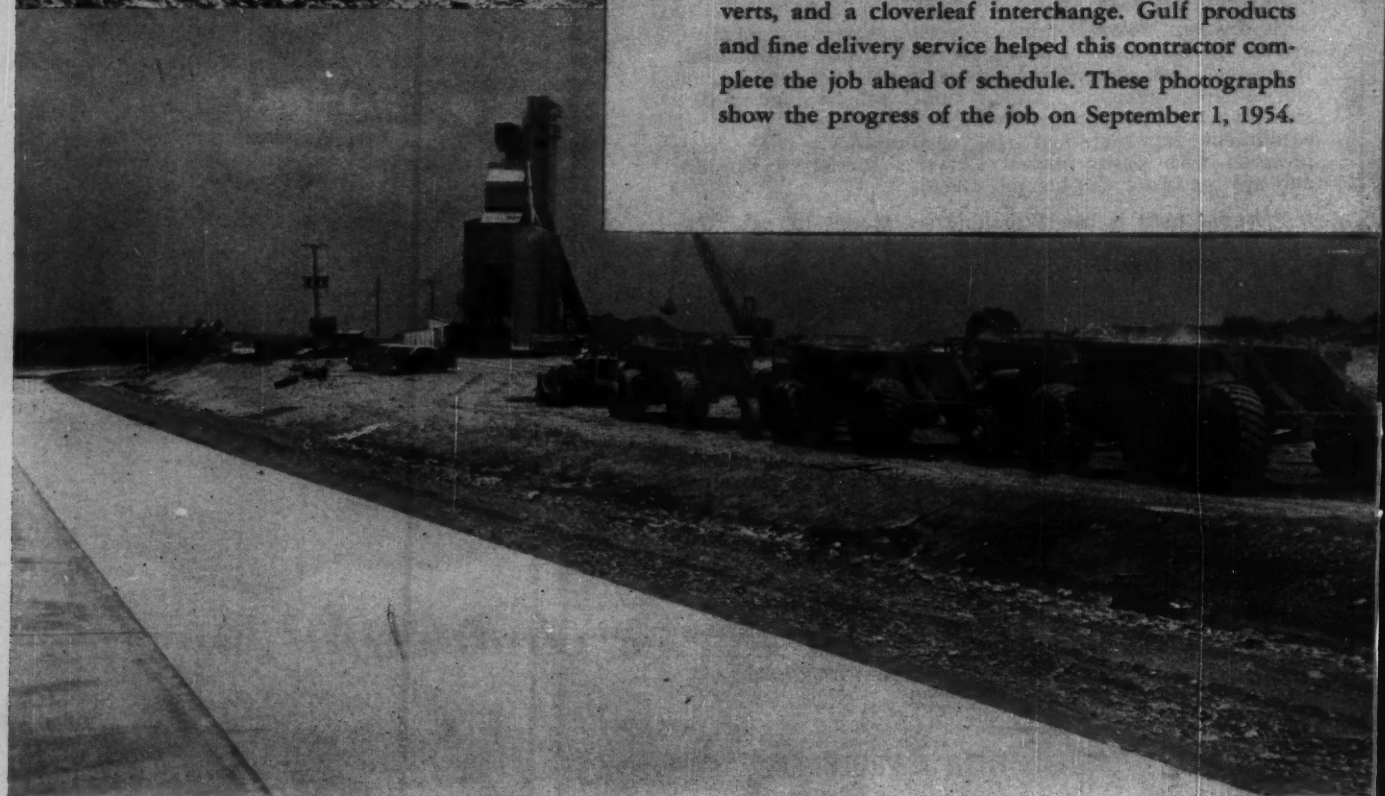


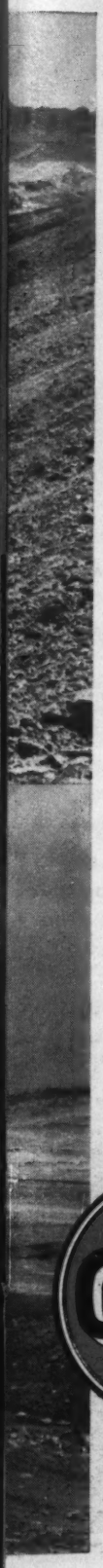
AGRICULTURE INDUSTRY CONSTRUCTION OIL FIELDS

GULF PRODUCTS



D. W. Winkelman Company, Inc., Syracuse, New York, recently completed sections C-2 and C-3 on the Ohio Turnpike, comprising 10.2 miles near Canfield, Ohio. Work involved 4,000,000 cubic yards of grading, 80,000 cubic yards of concrete paving, 18,000 cubic yards of concrete in structures, 16 bridges, 4 box culverts, and a cloverleaf interchange. Gulf products and fine delivery service helped this contractor complete the job ahead of schedule. These photographs show the progress of the job on September 1, 1954.





and FINE SERVICE

keep equipment rolling

on the Ohio Turnpike Project

The Ohio Turnpike is another huge and important project where a large percentage of the participating contractors rely on Gulf to keep their equipment on the job and delivering top performance.

D. W. Winkelman Company, Inc., for example, knows from long experience that Gulf quality products and prompt delivery service are an unbeatable team in helping to maintain all-round smoother operation, with fewer mechanical delays and lower costs.

Let us discuss with you how Gulf products and service can help on your next job. They are quickly available to you through more than 1400 conveniently located warehouses.

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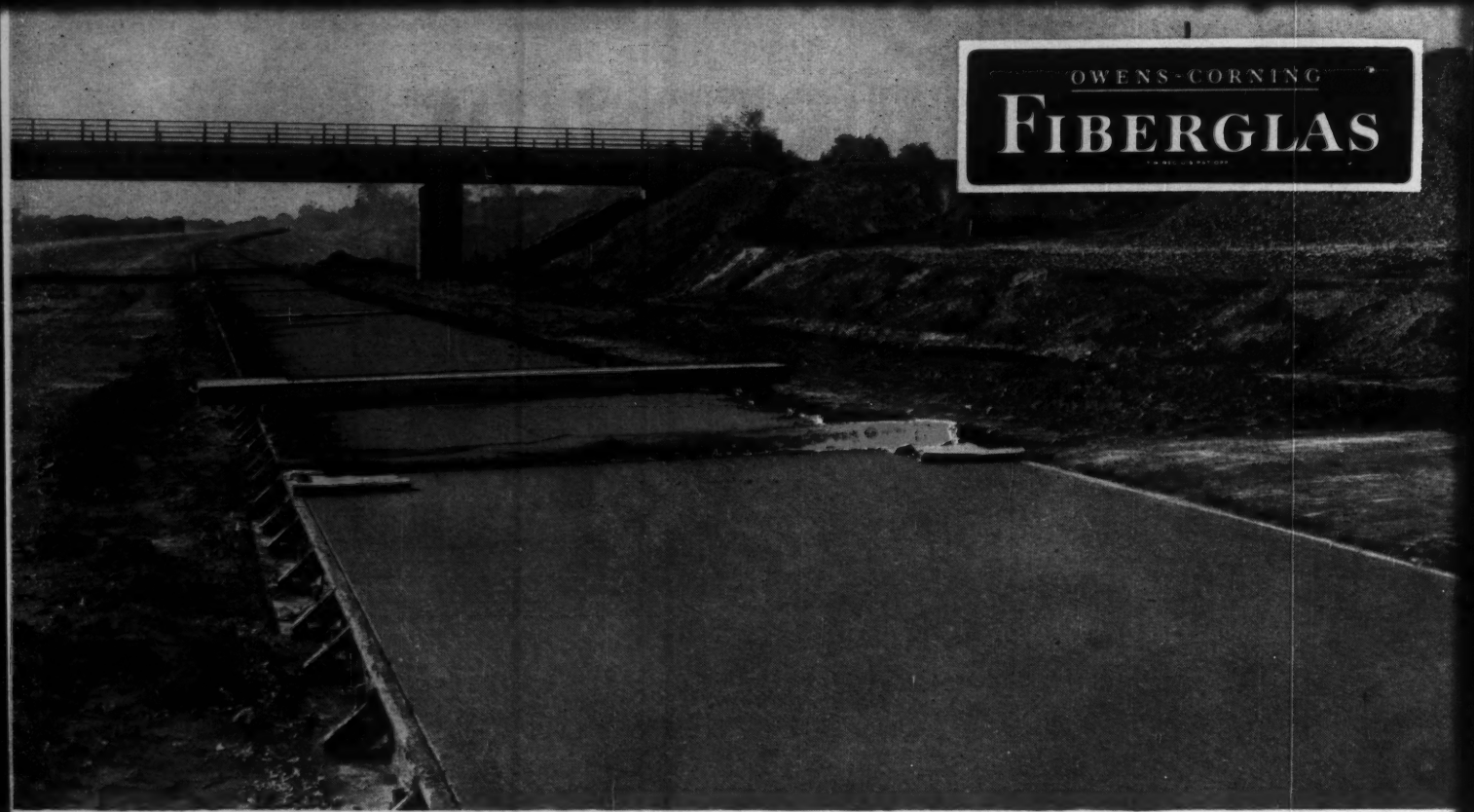


SURE CURE! THAT'S WHAT AMERICA'S CONCRETE ROADS GET WITH TOUGH, WEATHERPROOF FIBERGLAS-REINFORCED PAPERS.

ROAD TO CONCRETE SAVINGS

Fiberglas-reinforced weatherproof papers show the way

In road construction, where speed and economy are vital, the use of Fiberglas*-reinforced weatherproof papers for curing concrete produces exceptional savings.

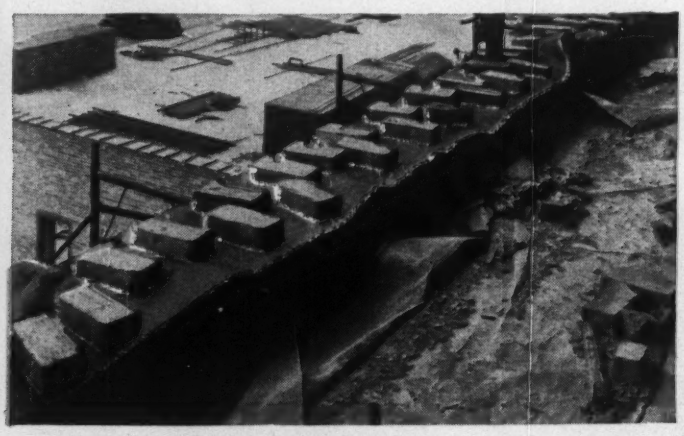
Fiberglas reinforcing filaments themselves have a tensile strength more than 3 times that of structural steel. They produce papers of tremendous ruggedness . . . papers that can't be torn by workmen's boots, or ripped by the wind, even when soaking wet. Yet they cost no more than ordinary filament papers.

Fiberglas-reinforced weatherproof papers also have countless other uses. If you construct, ship or store anything that requires protection, ask for complete information about Fiberglas-reinforced papers for the construction industry.

Write Today for Free Samples, plus a complete listing of converters. Address: Owens-Corning Fiberglas Corporation, Dept. 145-C-31, 598 Madison Avenue, New York 22, N.Y.

*T.M. Reg. O-CF Corp.

LAID UNDER CONCRETE, Fiberglas-reinforced weatherproof papers put a tough, moisture-proof barrier between the poured slab and the ground.



WEIGHTED STRIPS of Fiberglas-reinforced weatherproof papers protect fresh mortar after workmen leave during brick and block construction.

LICKS 5 MILES OF TROUBLE

Chunks of rock had to be blasted loose. The high arch of the 22-B dipper enabled it to load and dump this rock without jamming or slowing the cycle.

ON DELAWARE SEWER TRENCHING JOB

When the James Julian Construction Company contracted to dig five miles of sewer trench along state highway 141 near Wilmington, Delaware, Superintendent J. H. Hubbard figured he had trouble on his hands — and he did. The material turned out to be 40 per cent solid rock and 60 per cent hardpan clay. It had to be trenched 9 ft. deep for 30-in. mains and 12-in. secondary lines.

Superintendent Hubbard summed up his experience with the 22-B's by remarking, "I didn't quite appreciate how tough these 22-B machines were until we started this job. In digging like this you soon learn to respect a machine for its ability."

There's a reason why there are more Bucyrus-Eries working in rock than any other machines. They have the extra stamina for rough going, as well as the extra production ability for any job. Let your Bucyrus-Erie distributor show you why.

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BUCYRUS ERIE

South Milwaukee, Wisconsin

Front-to-rear taper of dipper speeds dumping, means extra clearance in wide trench work.

The box section boom and dipper handle eliminate dead weight, yet are plenty strong for tough digging. The entire front end can be positioned below cab height for safe, easy clearance in traveling.

READER COMMENT

No AF Construction Corps

SIR: I have just read the item "The Air Force still wants its own corps of engineers" in the "Washington Observer" column (ENR Feb. 24, 1955, p. 19).

I would like to state that the Air Force has no need for or intention of establishing its own construction corps. The Air Force, through the Major Commands, both within the United States and overseas, retains the responsibility for the design and construction of minor structures on and adjacent to existing bases and certain test facilities and specialized projects, etc., peculiar to the Air Force. Major construction projects are accomplished by the Corps of Engineers, United States Army, and the Bureau of Yards and Docks, United States Navy.

Our relationship with both of these agencies has been thoroughly satisfactory and their execution of a rapid Air Force expansion program has been of a high order. I am sure both agencies will continue to fulfill our construction requirements equally well in the future.

JOHN M. FERRY
Special Assistant for Installations
Department of the Air Force
Washington, D. C.

Get Out the Vote—II

SIR: In reply to Mr. Macfarlane's letter (ENR March 3, 1955, p. 10), the NYSSPE did not vote "to permit corporations to practice 'professional engineering' ". Only the legislature can do that.

The NYSSPE did vote to direct its representatives to urge the legislators of New York to take action. That is the right—even duty—of any citizen or group of citizens when a public issue is under consideration.

I am a member of the NYSSPE, and I do not subscribe to the society's action, but I insist that the society is acting appropriately in polling its members to determine the consensus of opinion on matters affecting the society and its members.

I submit further that there is no parallel between the concern of the NYSSPE in matters of legislation affecting engineering and a hypothetical concern among lawyers with questions of engineering. The law is the instrument of the people—including engineers—and can be amended by action of the people's representatives. This is not true of the natural laws governing engineering decisions. This body of law is not an instrument of the people, nor is it subject to amendment by action of the people. It would, however, be interesting to see "the lawyers, with the political power they have" undertake to answer almost any technical engineering question by a vote of the members of the Bar, as suggested by Mr. Macfarlane.

JOHN G. KNEILING
Engineering Consultant
Staten Island, New York City

Architecture and Art

SIR: There is great need for an appraisal of contemporary engineering design in architecture as related to art.

New York City has the tallest buildings in the world and our skyline is fabulous. Rockefeller Center, started in 1932, is an example of building with dignity. Furthermore, it is one of our most outstanding tourist sites and a successful investment as a development. However, it represents a definite point of departure in the use of art in architecture.

The thought behind the bareness in projects of today is that form follows function. However, buildings, like people, should, in a sense, have some personality. We are swamped into false functionalism. What is functional need not to be ugly, but can have grace and beauty; what is ugly is not necessarily functional.

The architect has a definite obligation and should do his best to create as beautiful an environment as he can. There are certain fundamental concepts that mankind has considered beautiful and actually satisfy basic human needs.

It so happens that I am trained in the belief and believe with strong conviction that architecture is the mother of all the arts, having had personal experience with them all. I realize that it is fundamental today that architects have a working knowledge of real estate economics and the hard-boiled approach by even the toughest investors, as well as the modern concepts of art, architecture and engineering. Furthermore, it is the architect's main responsibility to coordinate the wishes of his client and these requirements, and also to eject his own personal esthetic touch. Yet, as I look at the UN, Lever House, recent hospitals, and numerous office buildings, now completed or publicized to be soon started, I find the percentage of art, in general, is completely insignificant.

Architects, therefore, have a definite obligation to the profession, and other engineering consultants on the team, and should do their best to create as beautiful structures as they can. I think it is high time we architects take hold of ourselves and cease being afraid to make a stand. When we do this, we shall also coincidentally provide opportunities for painters, sculptors and other artists. It will be a healthy sign to the populace and visitors seeking the simple joys of living while growing old gracefully. We can help if we try hard enough with our team.

W. FONTAINE JONES
Architect
New York, N. Y.

CALENDAR

Regional Construction Conference, sponsored by the Cleveland Engineering Society, Cleveland, Ohio, April 11.

Wire Reinforcement Institute, Inc., spring meeting, The Greenbrier, White Sulphur Springs, W. Va., April 11-13.

Concrete Reinforcing Steel Institute, annual meeting, The Greenbrier, White Sulphur Springs, W. Va., April 11-16.

Conference on Biological Waste Treatment, Manhattan College, New York City, April 13-15.

American Wood-Preservers' Association, annual meeting, Hotel Jefferson, St. Louis, Mo., April 13-15.

Society of Automotive Engineers, Central Illinois Section, Earthmoving Industry Conference, Peoria, Ill., April 13-14.

National Engineering Conference of the American Institute of Steel Construction, Hotel Muehlebach, Kansas City, Mo., April 18-19.

Building Research Institute, annual meeting, Princeton, N. J., April 18-19.

National Air Pollution Symposium, Huntington-Sheraton Hotel, Pasadena, Calif., April 18-20.

Prestressed Concrete Institute, convention, The Lago-Mar Hotel, Ft. Lauderdale, Fla., April 21-22.

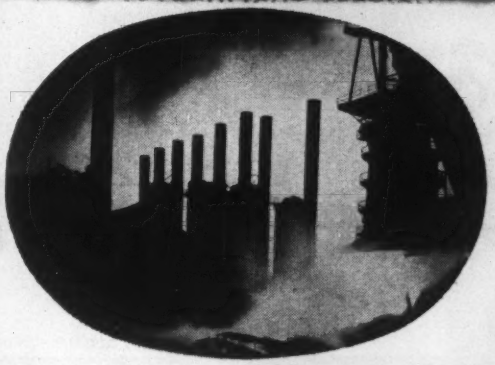
New York Section of the American Water Works Association, annual spring meeting, Hotel Statler, Buffalo, N. Y., April 21-22.

Society for Experimental Stress Analysis, spring meeting, Hotel Statler, Los Angeles, Calif., April 27-29.

Society of American Military Engineers, annual meeting, Waldorf-Astoria Hotel, New York, N. Y., May 5-6.

Annual Conference for Engineers and Architects, Ohio State University, May 6.

Purdue Industrial Waste Conference, Purdue Memorial Union, May 9-11.

IN  *PITTSBURGH...*

How many of the Raymond-supported buildings can you identify in the photograph below? If you're at all familiar with the Pittsburgh area, you'll probably recognize Forbes Field, the Carnegie Library, Schenley High School and the Falk Clinic, to mention a few. This situation is not unique to Pittsburgh alone.

In most metropolitan areas across the country the skylines are dotted with Raymond-supported buildings. That's because, for over half a century, engineers, architects and contractors have turned to Raymond for foundation jobs, no matter how large or small. May we be of service to you?

253 STRUCTURES *REST ON* RAYMOND FOUNDATIONS

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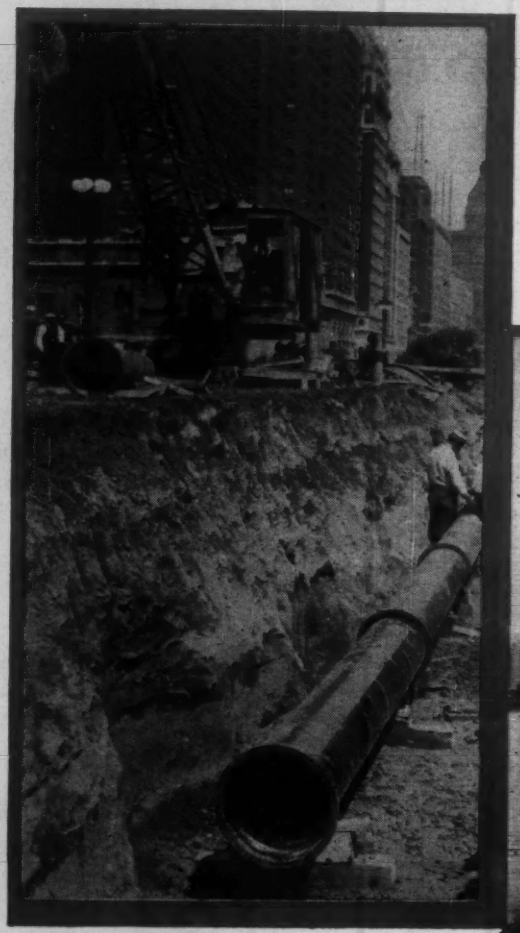
Serves so well....



Installing 16" cast iron pipe for water line in Chicago, Ill.

Installing 12" Standardized Mechanical Joint pipe for Fall River Gas Works Co., Fall River, Mass.

Cast iron pipe installed for East Providence, R. I., Sewage Treatment Plant.

CAST IRON PIPE

so many ways

A list of the many applications in which cast iron pipe serves so well might surprise you. Check them off. In *water* service—fire protection and supply lines, feeder and distribution mains, purification plants. In *gas* service, mechanical joint cast iron pipe is widely used for distribution mains. In *industrial* service, applications are almost endless in petroleum, process, chemical, paper and other industries.

Where effective resistance to corrosion and sustained carrying capacity are indispensable to long life and economy, specify cast iron pipe with confidence. For information write Cast Iron Pipe Research Association, Thos. F. Wolfe, Managing Director, 122 So. Michigan Ave., Chicago 3, Ill.

CAST Q IRON ®

The Q-Check stenciled on pipe is the Registered Service Mark of the Cast Iron Pipe Research Association.

Standardized Mechanical Joint pipe water line installed in Mobile, Ala.

36" flanged Ell with special base for Chicago filtration plant.

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Announces with Pride

TRU-LAY VHS

Very High Strength Wire Rope

TRU-LAY VHS will soon be the talk of men everywhere who use wire rope on the toughest jobs, as scraper ropes, drag lines, shovel hoist ropes, logging chokers, rotary drilling lines and slusher ropes.

TRU-LAY VHS *has 15% greater tensile strength than rope made of* IPS—*Improved Plow Steel. Up to now* IPS *has been the top standard rope.*

STRONGER AND TOUGHER

On jobs where the strength of wire is the big thing, VHS wins hands down. It's so much stronger that you can safely handle heavier loads with the same diameter rope; or you can use smaller ropes for the same loads.

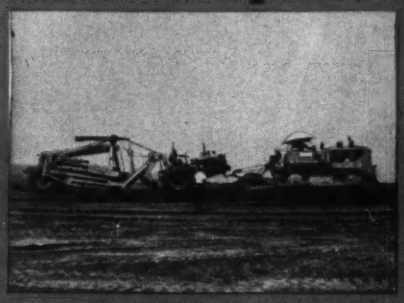
Along with its greater strength, VHS is a tougher and more wear-resistant rope. It offers greater resistance to abrasion. *This means size for size,* VHS *rope will last longer.*

Stronger and tougher, this new rope reduces replacement time. It increases work output and cuts down the number of feet of rope needed to operate your equipment.

A NEW GRADE OF STEEL

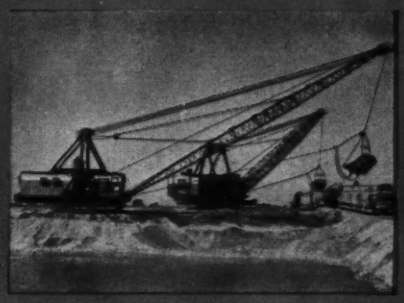
The secret of TRU-LAY VHS rope is a new grade of steel for wire rope and a certain way of processing it. ACCO engineers and researchers have worked on this for years. Now we are confident that it is the greatest improvement in wire rope since we announced Preformed thirty years ago. Those who have used it say it is by far the best rope they've ever used...In short, it combines all the advantages of Preformed with the added strength and toughness of VHS.

Developed for These TOUGH JOBS



SCRAPER ROPES

Small sheaves and drum, cross winding, dirt—all call for VHS with its higher strength, flexibility and resistance to abrasion.



DRAG LINES

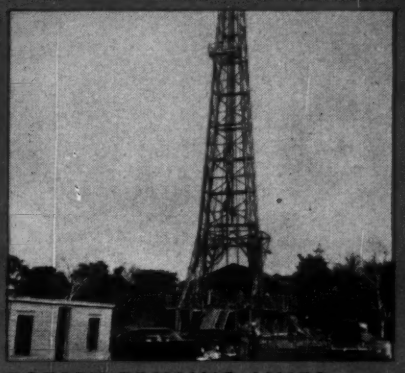
Are whipped, jerked, scraped, and dragged in the dirt. But a TRU-LAY VHS drag line will carry on long after other wire ropes are torn to shreds.

SHOVEL HOIST ROPES

Continuous bending and shock loads necessitate VHS, with its high resistance to abrasion and greater strength.

LOGGING CHOKERS

Here VHS's greater strength in a small rope size means easier handling for the setter. Combined with ACCO's DUALOC endings this means the ultimate in choker ropes.



ROTARY DRILLING LINES

Stronger VHS provides additional weight lifting capacity for deeper drilling with the same size rope. And it takes rough handling and abrasion in stride.

SLUSHER ROPES

Are dragged in the dirt and crosswound on small sheaves. Service records show that TRU-LAY VHS lasts longer in this tough service—costs much less to use.

VHS is the Biggest Thing in Wire Rope Since Preformed

TRU-LAY VHS was applied to certain confidential military uses during World War II. Until very recently, military applications have consumed almost all of our available output.

However, since the war a limited quantity has been sold under close control for specific commercial uses. It was tested under the most severe service conditions and it wasn't babied. *The tests proved that it lasted longer and did more work with less shut-down time for replacement.*

These on-the-job tests proved that TRU-LAY VHS reduced service costs below that of Improved Plow Steel wire rope which, up to now, has been the highest standard grade of the wire rope industry.

Now you can get this new and better grade of Preformed wire rope —TRU-LAY VHS—for use on the types of machines illustrated above.

Ask your nearby American Cable distributor about TRU-LAY VHS or write to the nearest American Chain & Cable Company office listed below for brochure DH-489.

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American Cable Division

AMERICAN CHAIN & CABLE

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Uranium Strike!

Back in the hills of the Colorado Plateau, the dependability and low-cost operation of Le Roi Compressors pay off

Uranium is a magic name. And to anyone interested in low-cost, dependable, air compressor operation, the name of Le Roi is magic, too. Just take a look at a few features that keep Le Roi Compressors running after others have "called it quits":

- Suction and discharge valves are interchangeable.
- Cylinders have circumferential fins for better cooling — greater efficiency.
- Radiators and intercoolers have sectional cores.
- Larger air receiver reduces pulsation and cools the air so that tools run better.
- Larger engines for greater reserve power permit slower operating speeds, longer life.

Le Roi Compressors are available in sizes from 85 cfm to 600 cfm. Gas or diesel models and a complete selection of mountings. Bulletins give full details — write for your copy.

C-157

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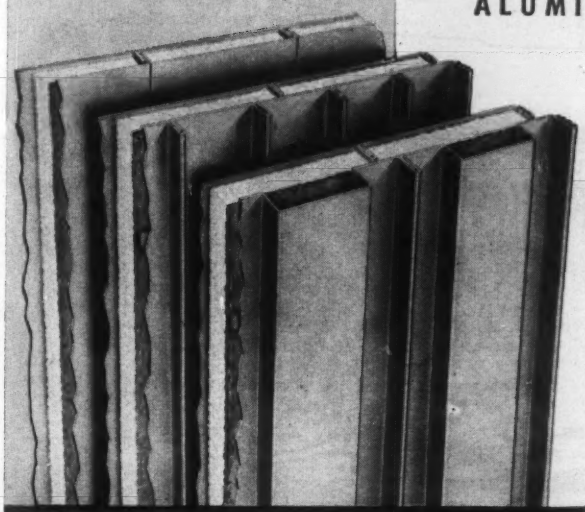
for INDUSTRIAL and COMMERCIAL BUILDINGS

ALUMINUM, STAINLESS or GALVANIZED STEEL



FLUSH, RIBBED, or FLUTED
Over-all "U" Factor of Various Types is Equivalent to or Better than Conventional 16" Masonry Wall

Architects and owners across the country are today turning to Insulated Metal Walls for low-cost permanence in new, modern buildings of virtually every type. These new light-weight, metal curtain walls are not only flexible in adaptation to building types, but present unlimited possibilities in architectural treatment of exterior design. Bright areas of aluminum or stainless steel in combination with brick, glass block, stained wood, tinted cement plaster, or other materials, offers designers a broad field in the development of distinctive and individualized exteriors. The industrial building below is a typical example. In this type of construction, important building economies are realized through lower material cost, low labor cost, and the cumulative savings and other advantages deriving from reduced construction time . . . buildings can be quickly enclosed with Insulated Metal Walls —even under extreme low temperature conditions. Mahon Insulated Metal Walls are available in the three exterior patterns shown at left . . . the "Fluted" or "Ribbed" wall can be field erected up to sixty feet in height without a horizontal joint—a feature of Mahon Walls which, from an appearance standpoint, is extremely important in powerhouses, auditoriums or other types of buildings where high expanses of unbroken wall surface are common. See Sweet's for complete information including specifications, or write for Mahon Catalog B-55-B.

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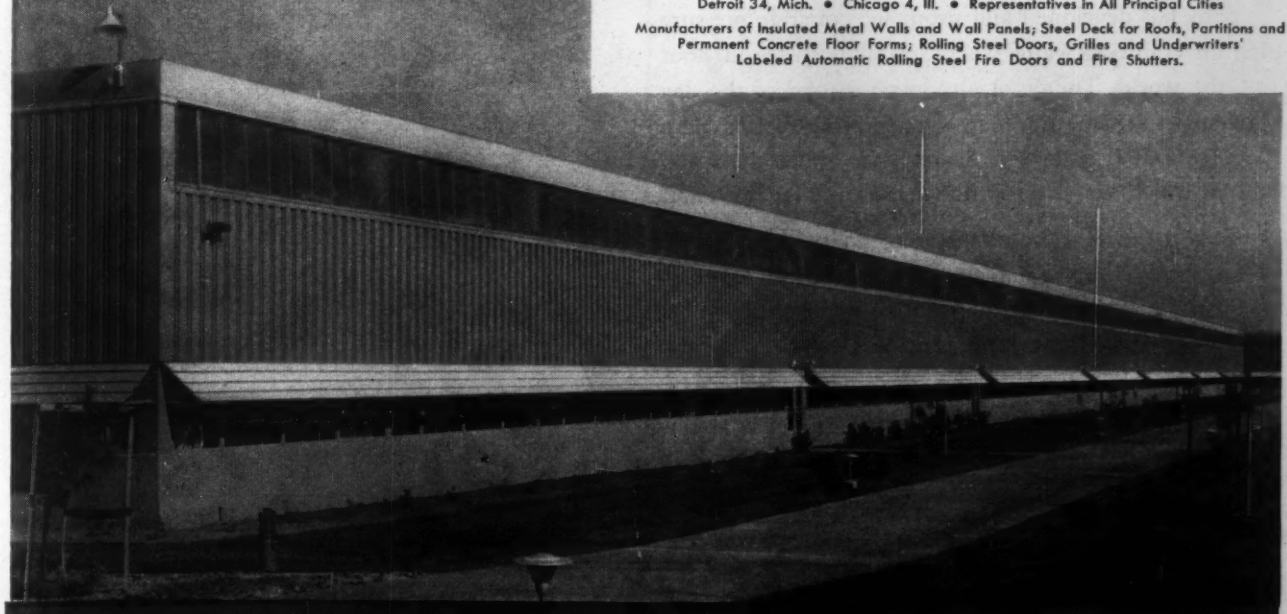
Detroit 34, Mich. • Chicago 4, Ill. • Representatives in All Principal Cities

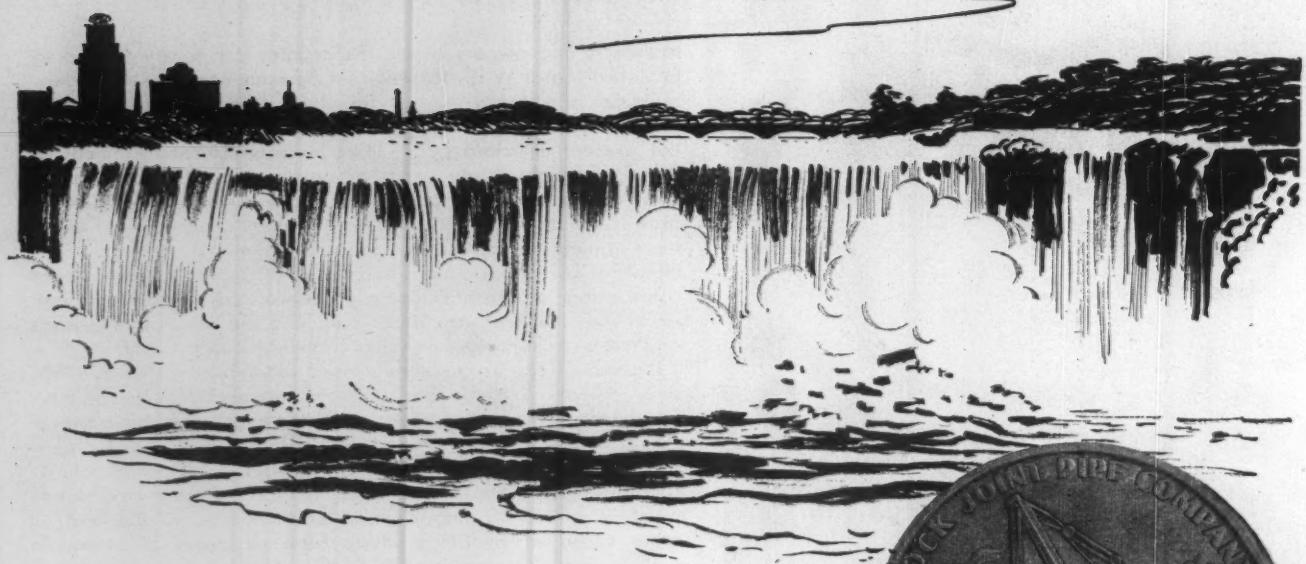
Manufacturers of Insulated Metal Walls and Wall Panels; Steel Deck for Roofs, Partitions and Permanent Concrete Floor Forms; Rolling Steel Doors, Grilles and Underwriters' Labeled Automatic Rolling Steel Fire Doors and Fire Shutters.



Steel-manufacturing plant for Bethlehem Pacific Coast Steel Corporation, Geneva, Utah. Pittsburgh Testing Laboratory, Contractors. 150,000 Sq. Ft. protect 24,000 Sq. Ft. of Mahon Insulated Metal Walls—area served Donald B. Warren Co., Designers. M. J. Brock & Sons, Inc., General Contractors. Chicago Steel Products Co., Inc., Supplying Engineers of Mahon Metal Walls and Roofing.

MAHON

580 times more water than flows over Niagara Falls!



IN 50 YEARS Lock Joint Pipe Company has developed and produced concrete pressure pipe for countless water works installations throughout the world. Today, at any given second of the day or night, these pipes are transporting better than 1,000,000,000 gallons of water — or more than 580 times as much water as is flowing over Niagara Falls.

This is the measure of the tremendous contribution Lock Joint Pipe has made, over the past half century, toward meeting one of civilization's most serious problems — water supply.

You may be sure that every resource of skill, experience and research at our command is at this very moment working on the answers to the even greater problems we must meet in the *next* 50 years!

LOCK JOINT PIPE COMPANY

Established 1905

P. O. Box 269, East Orange, N. J.

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CONTENTS

NATIONAL AFFAIRS

U. S. Needs to Spend $25 Billion in 10 Years 21
U. S. Supreme Court Protects Federal Jurisdiction Over Labor Disputes 22
Lease-Purchase Plans Advance 23
Highway Program now Up to the House 24
Closure Method Is Set at Gavins Point 25
Redesign Garrison Dam Stilling Basin 26
Upper Colorado Plan Enlarged 27

FEATURES

Harbor Freeway Pay-as-You-Go Project Profits by Experience 34
9-Story Garage to Resist Quakes 39
Ingenuity Solves Tri-Level Sewerage Problem 45
Blasting Is Also a Public Relations Problem 49

NEW PRODUCTS

Revamped D8 Is Really a New Tractor 57
Water Pump Supplies 300 psi Pressure at Remote Stations 58
Portable Chlorinator Useful for Emergency Services 58
Marion 2-yd Converts to 60-ton Crane 58
New Bituminous Mixer Is Stack-up, Tower-type Plant 59
Air Conditioner Fits Smaller Homes 59
Publications 60

INTERNATIONAL

Central Africa to Go Ahead With Kariba Gorge Project 63
Lebanon Picks 15 Firms for the Litani Hydro Scheme 63
Belgian Combine Bids Lowest for Venezuela Plant Design 63
French to Build Huge Exhibition Hall 63
B.C. Plans Hydro Program to Prevent "Brown-Outs" 64
French Firms to Finish Two Peruvian Projects 64
Jordan Development Schemes to Cost Some $400 Million 64

LABOR

More Understanding and Less Shouting 67
Apprenticeship Training Called Industry's Job 68
NLRB Raps Steamfitters in Squabble With Riggers 68
Unlawful Rules of Union Bring Contractor Trouble 70

MEN AND JOBS

U.S. Naval Officer Assigned Engineering Command Abroad 72
Three Firms Establish New Engineering Group 72
J. L. Brown Named Director of Concrete Pipe Company 73
Photogrammetry Society Installs New Officers 73
Gate-Lift Idea Pays Off 74

BUSINESS AND FINANCE

Highway Land-Buying Plan Gets Governor's Criticism 107
Utah Rules Contractor Must Pay Franchise Tax 107
GE Predicts Big Sales of Heat Pumps by 1960 107
How to Insure the Unpredictable Atom? Private Owners Want to Know 110
Two More Equipment Firms Get Backing for Export Sales 110
East Coast Is a Super-City According to Yale Planners 110
GM to Spend $75 Million on Indianapolis Facilities 110
Activity This Week 112

Reader Comment 8
Calendar 8
Washington Observer 19
City by City 28
Obituaries 75
Books 76
Construction Report 80
Unit Prices 104
Editorials 132

THE CONSTRUCTION WEEK

SUPER TOLL FINANCING—Connecticut is making a serious study of the possibility of pooling all bridge and highway toll revenue to finance new road construction. The proposal already is being studied by an advisory committee composed of bankers and insurance executives. And, now it has been decided to retain Coverdale & Colpitts, New York consulting firm, to determine whether sufficient income could be derived from such an arrangement on the basis of existing toll charges or whether tolls should be increased to back up the plan. Bonds on Merritt Parkway, one of the present major toll revenue producers, are nearly paid off. So, a continuation of tolls on this facility alone would be a major prop for the proposed scheme.

TUNNELING A BRIDGE—So as not to disrupt traffic on the heavily traveled main line of the Long Island Railroad in Queens, N. Y., while the Queens Midtown Expressway is carried under it, an overpass is being constructed by an unusual method: Two abutments and a center pier were concreted in trenches under the tracks. Two sets of tracks, with third rail, ballast, concrete deck and steel plate girders were assembled on each side of the crossing. Last Saturday, Horn Construction Co. rolled the 750-ton prefabricated eastbound section into place, and this Saturday, April 2, the 875-ton westbound half will be positioned. Then, the overpass will be completed by removing the earth under the bridge. The procedure was planned by Andrews, Clark and Bukley, consulting engineers, New York, N. Y.

SPACE PROBLEM—That long, low look of the new automobiles is getting a dark, dirty look from Phoenix, Ariz., traffic engineers. In a resort and retirement area where every second car seems to be a long Cadillac, engineers found that some parking-meter spaces were shorter than many of the new model cars, creating a parking problem that even power steering won't solve. As a remedy, downtown parking spaces are being shuffled to provide 22 ft for all spaces. Some existing spaces have been measured at only 15 ft.

SEAWAY FEVER—Pending completion of a survey as to what port improvements are necessary to make the most of the St. Lawrence Seaway, grandiose schemes are being proposed almost daily in Cleveland. Among the most ambitious: a $25-million international trade mart similar to the one in New Orleans; a world's fair to coincide with the Seaway opening; and a $15-million breakwall, running the length of the waterfront, to serve as an erosion barrier with landfill used for wharves, piers and terminals. Seaway committees are numerous. One, formed of Junior Chamber of Commerce members, operates a regular lecture service to promote interest in Seaway projects.

Armco Guardrail Takes Curves Smoothly

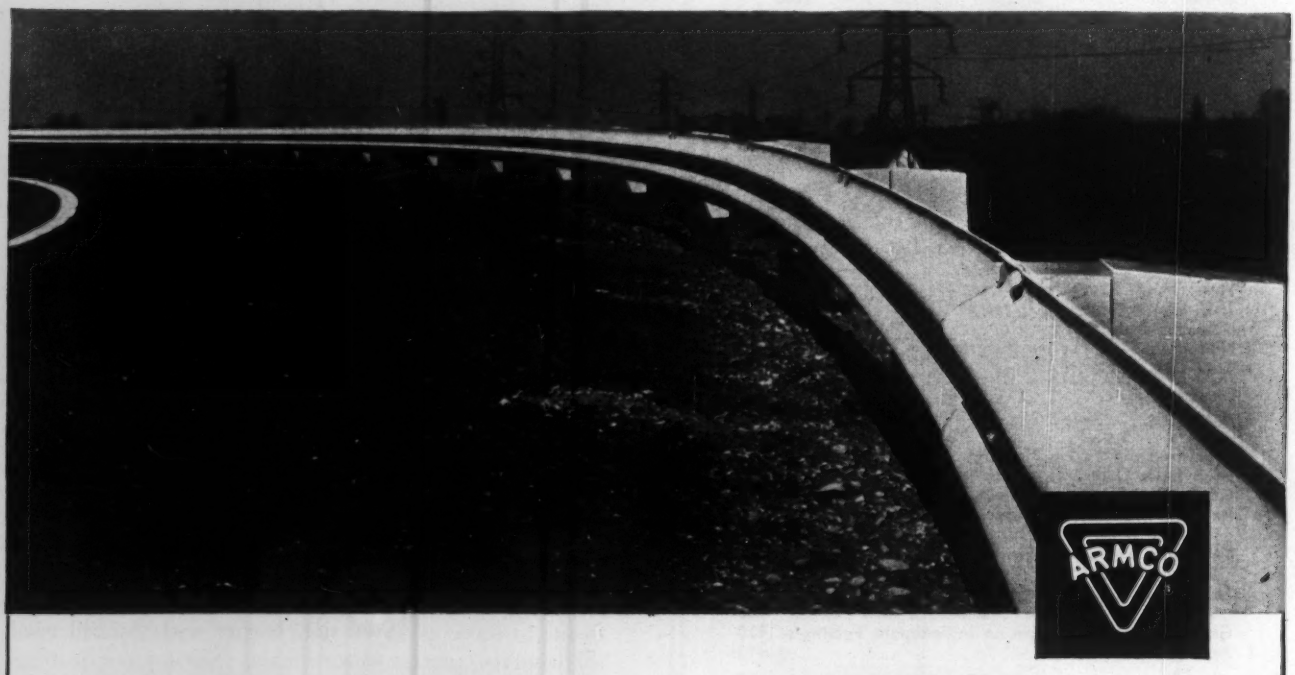
Sharp bends or gradual curves—it makes no difference with Armco FLEX-BEAM Guardrail. Sections can be shop-curved to fit any radius from 20 to 150 feet.

No special posts or attachments are needed because there is no tension. The 13-foot sections are simply bolted to the posts and the job is done. Just seven bolts make each splice.

And because there are no springs or turnbuckles, posts stay in alignment without costly maintenance. An occasional painting, to keep the surface bright and reflective is about the only upkeep needed. Costs are low to start with; stay low through the years.

The high beam strength of FLEX-BEAM Guardrail extends through the spliced joints. This means the force of any impact is shared by adjoining posts. Out-of-control vehicles are guided along the rail. There is no danger of "pocketing" at a weak spot or cracking and splintering under the extreme shock of a colliding vehicle.

Wherever guardrail is needed, specify Armco FLEX-BEAM and get all the advantages of low first cost, minimum maintenance, high visibility and high resistance to impact. Write us for complete information. Armco Drainage & Metal Products, Inc., 4925 Curtis Street, Middletown, Ohio. Subsidiary of Armco Steel Corporation. In Canada: write Guelph, Ontario. Export: The Armco International Corporation.



ARMCO FLEX-BEAM GUARDRAIL

WASHINGTON OBSERVER

The Administration is split over a coordinator of public works planning which Eisenhower promised in his messages to Congress this year.

Idea is to have the White House keep track of all public works plans underway in the states, cities, and federal agencies.

Proposal has strong backing only inside the White House—mainly from Presidential aides and the Council of Economic Advisors.

But there are strong objections from the construction agencies who see the proposal as an unnecessary duplication of functions already being carried out. This position is taken by the Corps of Engineers, the housing agencies, and such departments as Interior, Labor, Commerce, Post Office, the Atomic Energy Commission—and the Bureau of the Budget.

Proponents of the idea think they are boxed in—at least for the time being. As things stand now, they say a Presidential request to Congress for money for such an office won't be forthcoming in the foreseeable future.

•

More delay in getting new housing development programs started is certain if Congress adopts a "rider" the House Appropriations Committee has put on the money bill for the Housing and Home Finance Agency. A drive already is starting to get it knocked out of the legislation.

•

The veto on new public housing, slum clearance and urban redevelopment projects is similar to restrictions Congress placed on the federal building lease-purchase program last year (see page 23). The veto applies to college dormitory building, too. In the case of housing, the Senate and House Banking Committees will have to okay all new projects before HHFA can go ahead. The congressional reasoning: too much money is handled by HHFA without close congressional scrutiny. Politically, the restriction was pushed by opponents of public housing and slum clearance.

More money for rebuilding VA hospitals is in store. The Appropriations Committee added some $16.8 million—in the face of a Hoover Commission report urging a cutback in federal spending for VA.

•

Homebuilding outlook gets a close review this week by top officials of all the federal agencies that have anything to do with housing.

This group—the National Housing Council—hasn't met for a couple years. In fact, this will be its first meeting since the Eisenhower Administration took office. The council was created back in 1947, when the Republicans were in control of Congress.

Officials say alarm over high rate of housing starts isn't the reason behind the meeting—in fact, housing chief Cole says he sees signs that the boom in homebuilding may level off during the second half of this year.

•

Senate Banking Committee's housing investigation begins all over again next month under the direction of Sen. John Sparkman who takes Sen. Homer Capehart's place as chairman of the Banking Committee's subcommittee on housing.

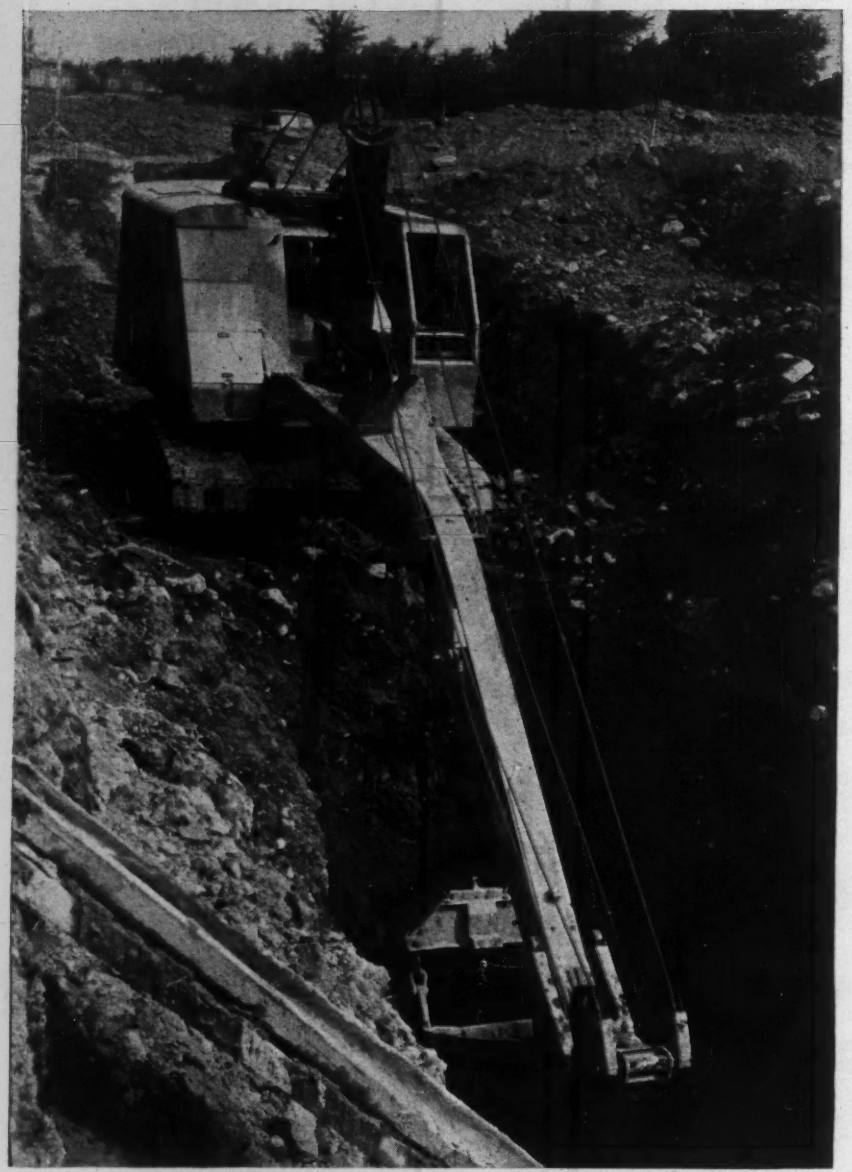
Sparkman will check the operation of the safeguards written into law last year as an aftermath of the Capehart hearings. He says that his committee has already gotten some complaints. But Sparkman expects his "friendly investigation" to follow along these lines:

Is the housing boom fueling inflation or a surplus of homes?—and if so, what should the government do about it?

Is the new urban redevelopment law a failure? Even the Administration admits they're having trouble here.

Are low-income families getting a chance at decent housing—either through the privately built homes or federal-sponsored housing projects?

How to get BIGGER output on BIG trench hoe jobs



K-370 DEEP-DIGGING TRENCH HOE DELIVERS MORE YARDS PER SHIFT. Sewer jobs like this are completed faster because dig-swing-dump cycles are much smoother. Operator has perfect "feel" of load as he operates conveniently located short throw Speed-o-Matic levers. Gooseneck hoe boom gives superior digging-dumping action.

13,623

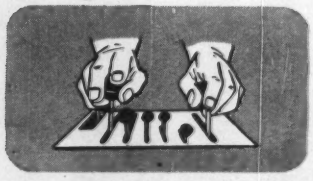
LINK-BELT SPEEDER CORPORATION, Cedar Rapids, Iowa

K-300 series machines offer extra capacity and power PLUS *Speed-o-Matic*® control

FIELD reports show that outfits using K-300 rigs have a decided advantage in bidding and *getting* the BIG jobs—at a profit! *Greater output* does it!

Extra work capacity of K-300 rigs is a combination of many things. Speed-o-Matic power hydraulic control keeps operator far fresher, more alert all day. Means greater output—up to 25% more buckets delivered.

K-300's greater power (142 usable hp) speeds digging because it minimizes stalling, produces smoother swings. Add to this the stamina and more *"live weight"* that permit continuous operation under full power month after month. No wonder owners say the K-300 is the best producer money can buy! See your distributor or write for K-300 series literature now.



Speed-o-Matic is today's fastest, easiest-to-operate and most trouble-free control system. Now standard on *all* Link-Belt Speeders.

Note the size, weight and heft built into the working parts and structure. More "live" weight permits more efficient use of extra horsepower.

BUILDERS OF A COMPLETE LINE OF CRAWLER, TRUCK AND WHEEL-MOUNTED SHOVEL-CRANES

LINK-BELT SPEEDER

For Water and Sewerage Works:

U.S. Needs to Spend $25 Billion in 10 Years

The U. S. must build $25 billion worth of water and sewerage works during the next 10 years to meet the needs of the nation.

This is the conclusion of an intensive study by the Department of Commerce's Water and Sewerage Industry and Utilities Division. The study said construction on that scale is required to take care of present deficiencies, necessary replacements and population growth.

Construction to meet the need would require capital expenditure at an average rate of $2.5 billion a year—two and a half times the current rate of spending for water and sewerage facilities.

At the $2.5-billion rate, less than two years' work is currently in the planning stage. The ENR backlog of waterworks and sewerage lists projects with a total estimated cost of $4.5 billion. Of this, waterworks projects total $1.6 billion and sewerage projects make up the balance of $2.9 billion.

ENR contract awards during the first 12 weeks of this year show a sharp increase in both waterworks and sewerage construction. Awards totaled $65.7 million for waterworks and $90.6 for sewerage, the highest dollar volume on record for this period. But even with the substantial increase indicated, contracts will fall far short of the $2.5-billion target.

• **Estimate is realistic**—Walter L. Picton, deputy director of the agency that made the study, published the results of the survey in this month's issue of the Commerce-Labor Department Construction Review.

Picton pointed out that local financing problems would make it difficult to increase water and sewerage plant construction to the extent required. But he insisted that the $25-billion estimate of needs was realistic.

"If it is not met," he said, "increasing water shortages or restrictions on water use and increasing stream pollution will result. During the past three years, over a thousand communities experienced such problems, and many more could be affected under continuing high levels of homebuilding and new suburban development."

In making its survey, Picton's division had solid ground to build on. It already had made a detailed survey of the adequacy of 552 major public water supply and sewerage systems. These systems serve 80,000,000 people—75% of the population that uses public water supplies.

The estimates were based on studies of annual water and sewerage construction put in place, the value of existing facilities and the rate of population growth. The Census Bureau, the Public Health Service and Geological Survey assisted in the survey, which is the most comprehensive of its kind ever conducted.

• **Construction needed now**—The survey estimated the accumulated backlog of currently needed construction at $10 billion—$3.2 billion for water supply and $6.8 billion for sewerage systems. It said the current backlog of needed construction dated from World War II when new construction declined to an extremely low level.

It estimated the present installed value (in 1954 construction costs) of public water facilities at $22.8 billion and of sewerage facilities at $19.4 billion. Construction to offset obsolescence and depreciation of these facilities during the next 10 years was estimated at $6.2 billion—$2.6 billion for water facilities and $3.6 for sewerage.

The survey estimated that the nation's population would increase by at least 21 million in the next 10 years and that per capita water use would climb from the current level of about 152 gallons to nearly 189 gallons by 1965. To meet these growth requirements, the survey estimated that $4.9 billion would have to be invested in water facilities and $4.2 billion in sewerage facilities.

Financing such a construction program is the hitch. Current spending is running at the record annual rate of a little more than $1 billion. In addition, expenditures for maintenance and repairs and for operations probably will amount to about $1 billion a year during the next 10 years.

Maintenance and repair costs are estimated to average about $500 billion annually for waterworks and $175 million for sewerage works. Operating costs are about $250 million and $100 million, respectively.

Best possibility for raising at least part of the additional capital needed is revenue bond financing through authorities, separate from local debt limits. Such authorities have been used increasingly in recent years. One disadvantage: Interest charges on revenue bonds are higher because the bonds are not backed by the general credit of the local government. Interest on revenue bonds average ½%-1% higher than on tax-exempt general obligation bonds.

According to ENR figures, revenue bonds were a big chunk, 45%, of 1954 waterworks financing and accounted for 38% of all sewerage financing. Municipalities in 34 states sold $167.8 million in waterworks revenue bonds last year, 4% more than cities in 31 states sold during 1953. Sewerage revenue bonds climbed 69% in '54 to $146.6 million, sold by cities in 27 states.

Needed Construction During Next 10 Years*

	Total	Water Works	Sewerage Works
		(In millions of dollars)	
Present deficiencies	$10,000	$3,200	$6,800
To offset obsolescence and depreciation	6,230	2,630	3,600
For growth	9,100	4,900	4,200
Total	$25,330	$10,730	$14,600
Construction now in planning stage†	$4,537	$1,642	$2,895

*Dept. of Commerce †ENR reports

State Rights in Labor Disputes

U. S. Supreme Court ruling in carpenter-machinist dispute curbs state attempt to circumvent NLRB jurisdiction.

The U. S. Supreme Court ruled this week that a state cannot use its antitrust laws to stop peaceful union picketing of a company engaged in interstate commerce. The court threw out an injunction against picketing by the AFL International Assn. of Machinists of Anheuser-Busch, Inc., granted by the Missouri State Supreme Court.

The unanimous decision, written by Justice Felix Frankfurter, said federal labor law gives the National Labor Relations Board primary, exclusive jurisdiction over such disputes and excludes state court action. It also reviews the growing line of cases spelling out the delicate area in which state action conflicts with federal action in the field of labor relations.

The case grew out of the long-standing feud between the AFL carpenters and machinists over Anheuser-Busch's millwright work—the repair or replacement of machinery. Anheuser-Busch customarily used outside contractors to handle a large part of millwright work connected with expanding its plant facilities. The IAM went out on strike in 1952 when negotiations between the union and the company on a new contract fell through.

The machinists were trying to renew a clause in their old contract, providing all millwright work, when necessary, would be given to outside contractors who had collective agreements with IAM. The AFL carpenters protested to Anseuser-Busch that they would sign no contract covering employes in the carpenters union until the clause was taken out of the IAM contract.

One day after the IAM strike began, Anheuser-Busch filed an unfair labor practice charge with NLRB, under the secondary boycott provisions of the Taft-Hartly Act. Before the NLRB could act on this charge, the company went into the state courts to get an injunction, charging secondary boycott violations and an illegal conspiracy in restraint of trade under Missouri state law.

NLRB then denied action of the company's charge, reasoning that at the time of the strike IAM could not have been requesting assignment of "particular" work to IAM members because the union was not complaining about assignment of work by Anheuser to its own employes.

More than a year after NLRB's action, the Missouri Supreme Court ruled the union conduct was in violation of the state's antitrust law and issued a permanent injunction against further picketing.

In effect, Frankfurter's decision says that a state court should decline to interfere in cases where unfair labor practices are charged if it appears "reasonable" that the federal law prohibits those practices or where it appears that the conduct, if not prohibited, is "reasonably" within the protection afforded by the federal law.

Thus, the case is a new addition to the list of Supreme Court cases spelling out the boundaries of the no-man's land separating state and federal jurisdiction over labor. Briefly, this is where the lines now stand according to Justice Frankfurter's review:

Areas where states may not act:

- States may not prohibit exercise of rights which the federal acts protect, such as collective bargaining.
- State law strike-vote provisions may not conflict with the procedure or protection set up by federal law.
- State statutes barring strikes in public utility services are an invalid interference with rights under federal law to strike peacefully to enforce demands for wages, hours and working conditions.
- States may not enjoin, under their own labor laws, conduct which has been made an "unfair labor practice" under federal law.
- States may not certify a union as collective bargaining agent for employes where the federal board, if called upon, would use its certification procedure.

Areas where state action does not conflict with federal jurisdiction:

- Injunctions against mass picketing, threats of bodily injury and property damage to employes, obstruction of streets and public roads, and picketing of employes' homes.
- Prevention of recurrent, unannounced work stoppages, such conduct being neither prohibited nor protected by federal law.
- Enforcement of maintenance-of-membership clauses in a union contract.
- Award of damages based on violent conduct—even though the conduct is an "unfair labor practice" under federal law—since there is no federal relief with which it conflicts.

Plea for New Building Statistics Loses

The Administration's plan for better statistics on homebuilding was set back last week. The House of Representatives refused to appropriate an extra $165,000 asked for by the Bureau of Labor Statistics to expand its construction statistics program.

The House OK'ed an appropriation of $322,000—enough to keep the BLS program at about the same level as during the past few years. There's a good chance the Senate may restore all or most of the extra $165,000.

BLS asked for this money at the request of the Council of Economic Advisers, which has been particularly interested in construction as an indicator of the strengths and weaknesses of the economy.

The BLS proposal would provide more data on labor requirements in all types of new construction. And it would provide brand new information on the new homes being built.

BLS already offers estimates of how much labor is needed on different types of construction. It does this by analyzing specific projects and then blowing up the figures to provide an estimate of how many workers are needed in each construction category. But BLS admits that the factors it uses to multiply these samples are more than 20 years old. Changes in materials, methods, and costs make statisticians skeptical about their accuracy.

The extra $165,000 that BLS wants would be used to provide reliable answers to questions like this: "How much and what kind of manpower will be needed for a given project or projects? How many men with what kinds of skills do you put to work on a given project or program of a given size?"

On housing, BLS believes there are wide gaps in the data about this year's estimated $12 billion in volume. The figures are believed to be accurate on the total amount involved. But BLS officials say they don't know how much of what kind of housing is being built. They'd also like to know, for instance, whether builders are working out more efficient ways to build bigger homes to take care of the trend to larger families. They'd like to have a better idea how changes in types of homebuilding affect the market for building materials and appliances.

The idea is to produce a clearer picture of what kinds of homes are being built and what types of homes buyers want. Then the Federal Housing Administration and the Veterans Administration could—if they wanted to—modify their appraisal and loan-guaranty policies to gear homebuilding more closely to buyer needs.

Lease-Purchase Plans Advance

GSA and Post Office Dept. soon to let design contracts for first 10 projects under new federal building scheme

Architect-engineer contracts soon will be negotiated for the first 10 projects in the federal government's new lease-purchase program.

The General Services Administration already has questionnaired all registered architects in local areas where four buildings costing $1.5 million to $2 million each are to be built. Similar screening will soon be started by the Post Office Department among registered architects in areas adjacent to six smaller jobs that average about $125,000 apiece.

Taken together, the 10 projects represent an $8-million start on a program that contemplates some $200 million of new building contracts in the next year and a half. The government's two lease-purchase agencies have pending for the current fiscal year 25 projects, on which they hope to obtain final approval during the present session of Congress. Their estimated cost exceeds $40 million.

For the fiscal year that starts July 1, GSA and the Post Office have much bigger programs to present to this session. GSA is completing work on proposed projects that may run to $150 million. And the Post Office expects to submit two or three times as many projects as it proposed for fiscal 1955.

• **Contractor and investor bids**—Design contracts for the first 10 projects should all be under way by summer. The GSA jobs are nearest to negotiation. Post office projects are momentarily delayed until the department works out final details of a standard design contract with the American Institute of Architects, but selection of post office design firms will move rapidly in the near future.

As soon as designs and specifications for the projects are completed, bids on the buildings will be invited from construction contractors and investors. GSA plans to ask for sealed bids from both groups at about the same time—the contractors to name a price for erecting the building and the investors to propose terms under which they would lease the building to the government for a stated period, generally 20 to 25 years, with the government acquiring ownership at the end of that time. Bidders will be permitted to make offers on both proposals and to condition their bids on acceptance of the combination, if they so desire.

GSA's first four projects, soon to be placed under design contracts, include a dual-purpose post office and office building in Green Bay, Wis., estimated to cost $1.6 million, and three post office and courthouse combination structures at Lake Charles, La., $2 million; Rock Island, Ill., $2 million, and Council Bluffs, Iowa, $1.6 million.

The six single-purpose post office projects, for which design contracts will be negotiated a little later, involve three independent post offices at Point Pleasant, N. J., St. Mary's Ohio, and Oxford, Pa., two branch stations in Scranton and Brooklyn, and a maintenance garage with large outdoor parking space in Atlanta. Total cost of the six projects—$725,000.

• **Many proposals in the mill**—Designs of all 10 projects are expected to be completed in time for advertising of construction and leasing contracts this year. How fast other projects come along depends on the Budget Bureau and the Public Works Committees of the House and Senate. All three have to approve a lease-purchase project before it advances to design stage.

After a year's experience, both GSA and the Post Office think they have learned how to base their proposals on rock-bottom requirements and field facts that will more quickly win approval for lease-purchase financing. The test will come when the fiscal 1956 programs are presented.

Meanwhile, some pending projects are well on their way through the approval mill. The Budget Bureau has cleared everything so far submitted by the Post Office, but five projects are temporarily hung up in committees.

A score of pending GSA projects also are moving nearer to final decision. The House committee approved 29 GSA projects last year, subject to review by the Budget Bureau. But the Senate body questioned some of the cost estimates and ordered all projects held over for further study.

Since then, GSA and the Budget Bureau have been making field investigations and reviewing preliminary proposals, with some effect. The Senate committee in February approved the first four projects, now up for design contracts. Restudy had cut the total estimated cost of the four jobs by $1.25 million.

M.I.T. Will Dedicate Its Tripod-Dome Auditorium in May

Acoustical baffles hover above the stage in M.I.T.'s new Kresge Auditorium like clouds in the sky. The building is not yet completed, but it is already in use and will be formally dedicated in May. A feature of its design is its triangular-domed roof which eliminates interior columns (ENR May 27, 1954, p. 30). The dome is not structurally joined to the rest of the building so that it is capable of expanding and contracting. Architect was Eero Saarinen and Associates in association with Anderson and Beckwith, Boston; acoustical engineer was Bolt, Beranek & Newman, Inc.; general contractor is George A. Fuller Co.

Highway Construction Needs Under the Eisenhower Program Listed According to System and State

(All amounts in $1,000,000)[1]

State	Federal-Aid Systems			Non-Federal-Aid Systems		
	Inter-state	Primary	Secondary	State Highways	Roads & Streets	TOTAL
Ala.	$ 366	$ 202	$ 134	$ 13	$ 1,249	$ 2,054
Ariz.	210	132	143	..	171	656
Ark.	203	249	349	15	268	1,084
Calif.	2,321	1,536	648	774	2,930	8,209
Colo.	157	381	197	6	709	1,450
Conn.	555	618	207	373	301	2,054
Del.	66	107	83	30	22	308
Fla.	496	831	316	220	167	2,030
Ga.	700	641	355	87	474	2,257
Idaho	107	178	99	9	174	567
Ill.	1,065	982	139	405	1,886	4,477
Ind.	867	1,119	747	51	1,422	4,206
Iowa	275	1,172	514	4	522	2,487
Kan.	207	666	314	..	475	1,682
Ky.	492	487	495	286	177	1,937
La.	493	232	259	271	307	1,562
Me.	147	345	140	123	115	870
Md.	434	496	258	28	308	1,524
Mass.	838	625	412	12	562	2,449
Mich.	1,295	1,825	1,268	162	2,151	6,701
Minn.	483	494	229	7	437	1,650
Miss.	246	303	127	21	226	923
Mo.	599	877	308	30	717	2,531
Mont.	153	321	79	1	195	749
Neb.	106	190	169	4	352	821
Nev.	73	93	41	2	11	220
N. H.	66	204	84	75	129	558
N. J.	1,357	1,706	249	92	1,219	4,623
N. M.	235	247	117	97	310	1,006
N. Y.	1,336	3,356	889	25	821	6,427
N. C.	247	356	255	21	337	1,216
N. D.	107	82	188	1	106	484
Ohio	1,361	1,200	475	320	1,680	5,036
Okla.	377	609	235	37	281	1,539
Ore.	319	333	106	22	291	1,071
Pa.	760	1,556	1,440	1,250	708	5,714
R. I.	123	245	38	24	56	486
S. C.	183	123	77	98	109	590
S. D.	95	164	157	7	102	525
Tenn.	380	587	245	7	581	1,800
Tex.	872	655	464	289	1,394	3,674
Utah	238	129	63	41	161	632
Vt.	178	179	74	2	40	473
Va.	569	467	228	20	473	1,757
Wash.	467	484	307	97	614	1,969
W. Va.	258	668	485	1	366	1,778
Wis.	323	725	547	..	790	2,385
Wyo.	296	226	105	1	203	831
D. C.	152	153	9	10	..	324
Subtotal continental United States	$23,253	$29,646	$14,867	$5,471	$27,099	$100,336
Hawaii	..	100	52	..	34	186
Puerto Rico	..	136	64	29	53	282
GRAND TOTAL	$23,253	$29,882	$14,983	$5,500	$27,186	$100,804

[1] Individual entries may vary slightly from original reported data due to rounding in $1,000,000's.

It's Up to House

Highway program snarled in Senate, may be jelled by House subcommittee

With the President's highway program drifting aimlessly in the Senate, it looks as if it is up to the House roads subcommittee to come to grips with the controversial issue. House hearings will start April 18.

Prospects that the House subcommittee, chairmanned by Rep. George H. Fallon (D., Md.), will report a bill to the House at this session are rated high. But, it will be the subcommittee's own legislation. After the hearings, which are expected to last six weeks, Fallon says the subcommittee will write a bill of its own.

The subcommittee intends to get right to the heart of the President's proposal—i.e. that the federal government finance the 40,000-mi interstate system outside the budget.

A questionnaire the subcommittee is submitting to all witnesses is designed mainly to sound them out on this point. Other questions seek information on what should be done about the rest of the roads in the federal network.

• **New Case proposal**—In the Senate, where the financing aspects of the President's program continued to draw fire, Sen. Francis Case (R., S. D.), muddied the waters still further. He came up with a proposal that part of the cost be defrayed by charging special license fees to heavy trucks and buses and by collecting tolls at bridges and tunnels on the interstate system.

Case, former chairman of the Senate roads subcommittee, was cosponsor of the Administration bill in the Senate. But, he reserved the right to put in a measure of his own, as he has now done. His action is considered to have killed the last slim chance for Senate committee approval of the White House bill.

Treasury Secretary George M. Humphrey made a valiant defense of the President's highway financing proposal at a Senate hearing last week. But, his stand was countered by strong criticism voiced at a later hearing by Joseph Campbell, newly confirmed head of the General Accounting Office.

Campbell proposed that the government continue the present system of paying for roads through direct appropriations, as is proposed byDemocratic Sen. Albert Gore.

This should be done, Campbell said, even if it means raising the public debt ceiling. Campbell also warned that if the highway corporation

is created, Congress would, to a degree, "lose it's control over the highway program."

Campbell also said that the Administration's proposal to earmark federal gasoline taxes to pay for the highway bonds raises "questions of legality." He pointed out that the gasoline taxes are part of the government's general revenue and questioned whether they can be specifically and indefinitely earmarked for the highway bonds.

Crackdown on Costs

Appropriations, not bids, should determine project costs, governor decrees

Connecticut's Gov. Abraham A. Ribicoff has served notice that his administration will crack down on construction costs that exceed legislative appropriations.

In line with the policy, the governor announced that he had ordered that all bids on the proposed new State Highway Department building be rejected and the plans revised to bring the project within the legislature's appropriation.

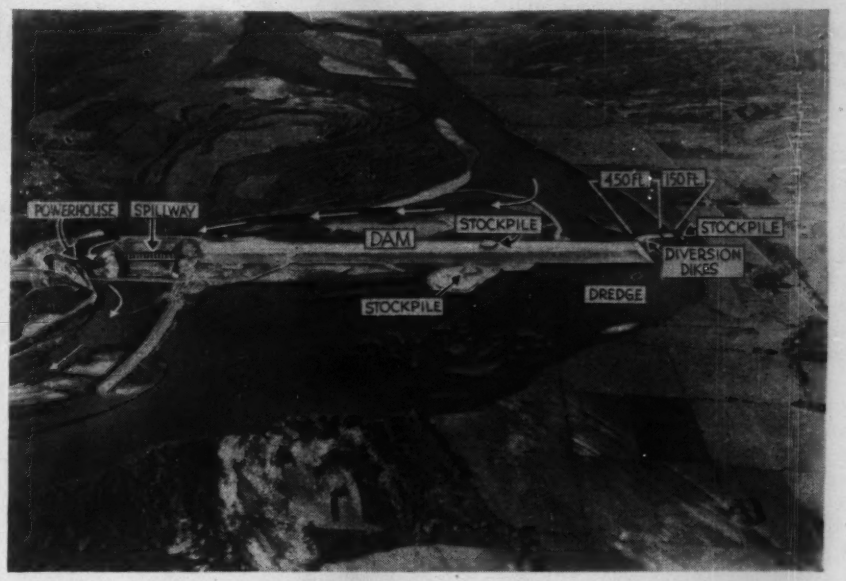
Of a $2.5-million appropriation made in 1953 for the building, $2.1 million is available for actual construction. When bids were opened, the lowest was for $2.9 million. There were nine other bidders on the job, the highest was $3.3 million.

Gov. Ribicoff said that if the plans cannot be revised to bring the project within the appropriation, "the matter will be brought to the appropriations committee of the legislature for a decision as to whether or not more money should be made available."

During the postwar period of increasing prices, bids frequently have exceeded appropriations. Sometimes, the jobs have been re-figured downward, but in many other cases, the low bid was accepted despite the fact it exceeded original plans. The additional money was then made available for the project by the State Advisory Committee and the governor's office.

Henry Ludorf of Hartford, the architect for the highway building, in a letter to Public Works Commissioner Timothy J. Murphy, said he had rushed the estimates in the first place. He said if he had had more time, his estimates might have been nearer to the low bid.

Commissioner Murphy announced that he has sent letters to all architects now working on state projects telling them that change orders must be kept to a minimum and fully explained if they are to be approved.



MISSOURI RIVER RE-REGULATING DAM is ready for closure.

Closure Method Is Set at Gavins Point

Contractors have set in motion the work that will climax after July 1 with the closure of Gavins Point Dam near Yankton, S. D. The dam is the smallest and farthest downstream of the Army Engineers' Missouri River main stem dams.

The Western-Massman-Jones combine has stockpiled an initial 6,000 cu yd of chalk to be used in the closure. An 11-yd electric shovel, used at Fort Randall Dam, was re-equipped with a boom to convert it into a dragline, and a 13-yd bucket was moved on to the job. A 20-in. portable dredge is being assembled.

Economics rule against the use of the 36-in. dredge, the Western Chief, which is at the project. Final plans were agreed to in consultation between Army Engineers and the contractors.

The closure promises none of the drama of that at Fort Randall Dam, where closure was brought about hydraulically in a technique new to engineering through use of the Western Chief (ENR Aug. 14, 1952, p.37), or of the Garrison Dam closure, where a two-mi "race" by a big walking crane was the pivot on which successful closure turned. With Fort Randall Dam 75 mi upstream providing complete control of Missouri River flows, the Gavins Point closure promises to be a routine operation.

The closure proper will be carried out over a five-day period. A two-phase operation is planned to close the 600-ft gap through which the Missouri now flows.

Phase one calls for shoving the closure section out 450 ft from the existing end of the dam. This will be done by end dump trucks, loaded by the big dragline and a smaller 3-yd companion, working off two stockpiles.

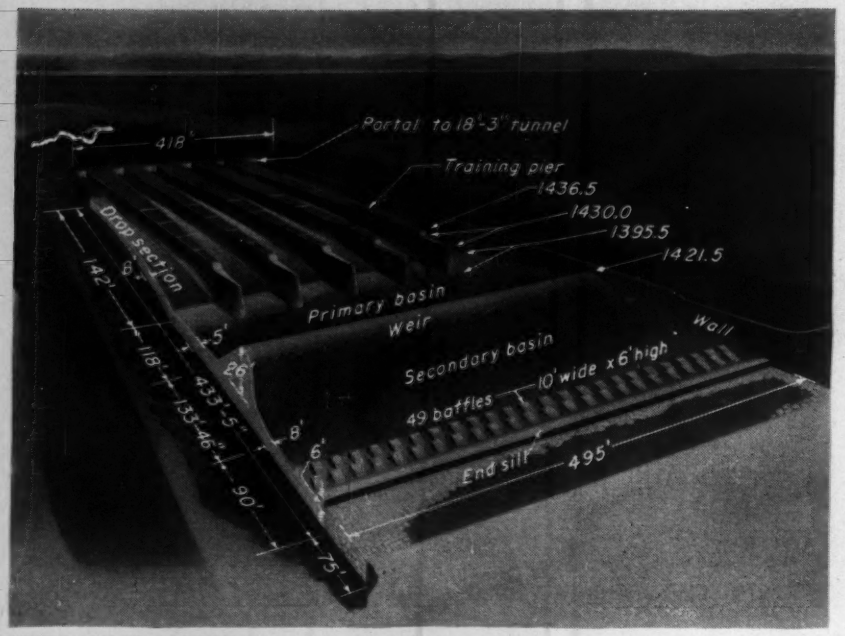
While this work is going on, the 20-in. dredge will pump sand behind the closure section, both to provide reinforcing and to build up a pad on which to stockpile material for the final operation.

The schedule allows three days for building the 450 ft section. It will be carried out against a river flow of from 20,000 to 30,000 cfs.

The final closure will be carried out by two draglines—the 13-yd machine working off the end of the 450 ft section and a 54-B dragline on the left, or South Dakota bank. Their booms together will span the closure gap. The dragline on the South Dakota shore will assist with the closure and also will provide protection if the bank shows any tendency to scour as the river is pinched down.

For the 48-hour second phase, the flow out of Fort Randall Dam will be cut down to 7,000 cfs. The two draglines then will begin construction of the sill, bringing the fill up level until the river is directed through the draft tubes. End dump trucks will complete the section, bringing it up an additional 18 ft in elevation and 30 ft wide at the crest.

As soon as diversion is completed, head will be built up in the reservoir to put the water through the spillway. The draft tubes then will be unwatered to permit powerhouse work and equipment installation to be resumed.



HYDRAULIC MODEL helps solve foundation problem.

Redesign Garrison Dam Stilling Basin

Army Engineers have run into a tricky foundation problem in construction of the stilling basin and appurtenant works for the $321-million Oahe Dam on the Missouri River near Pierre, S. D. The trouble will cause changes in construction procedure and some design modification.

The problem arose with excavation of a seven-acre tract for the dam's stilling basin. Up to 200 ft of overburden had to be removed. Altogether about 3.5 million tons of earth and shale were excavated. This reduced the loading on the uncertain, heavily faulted Pierre shale underlying the area by about 24,000 lb per sq ft. After excavation, the area rebounded upward 1.1 ft or more very quickly, and has continued its upward thrust at a slowing rate.

This was no surprise to engineers on the job; they expected it. At Garrison Dam, also on the Missouri River, rebound in the stilling basin excavation was 2 ft. What complicated things at Oahe Dam was that the rebound is not even. There is more than 1 ft of differential.

As overburden was removed, the shale apparently fractured along the fault lines and rose abruptly in an irregular pattern. Some big blocks of shale were tilted; others floated up independently of those around them; still others were squeezed together and pushed upward.

• **What caused it?**—Engineers advance several theories as to the cause of this rebound. Pin readings show that there has been a certain amount of deconsolidation. Or, blasting may be responsible. The blasts, this theory goes, sent shock waves down into the ground where they acted on groundwater between the blocks of shale to jar the blocks loose.

Drilling now is under way in the stilling basin to determine the exact limits of the rebound.

The key question is whether the shale will stabilize itself. It appears to be doing so. From Jan. 20 until Mar. 18 the continued rise was only 1 in., and this was at a progressively decelerating rate.

If the area fails to stabilize itself, some costly delays may result. Pierre Constructors, a combine that holds the $4.8-million stilling basin contract, already is mobilizing its equipment and will begin erection of its concrete plant soon to start work when weather permits.

The stilling basin is scheduled for completion by November 1957. It will consist of walls and slabs forming an area about 433 ft long and 495 ft wide. Five reinforced concrete training piers about 55 ft high and 253 ft long will extend downstream from the tunnel portals. Stilling action will be assisted by a weir or dam 26 ft high separating the basin into two sections.

• **Design changes**—The rebound has resulted in some re-design and some shifting of work plans.

• The order of the work will be rearranged. First work will be on portions not affected by fault planes.

• Orders will require that first work be on the walls. Where the walls cross a fault plane, a monolith will be left open for the time being.

• The anchorage system will be extended to cover the entire stilling basin area and deepened to bind the shale blocks in place.

• The weir will be re-designed. Original plans had called for a key to go down 17 ft below the weir block. Because further excavation might set up a new cycle of stresses, the key will be eliminated. Anchors set at angles will be used instead.

• The slab in the primary basin, which was to have varied in thickness from 5 to 8 ft, will be thickened to a uniform 8 ft.

• The unexcavated portion of the discharge channel—now 170 ft downstream from the stilling basin—will be stripped back another 100 ft to lessen weight and ease whatever forces it contributed to the rebound.

• First pours on the slabs will be in the non-faulted areas. When the faulted areas are poured, pipes will be left leading to test gages.

These plans are subject to change. Engineers are continuing their foundation studies, and pouring of concrete is not scheduled to begin before the middle of May.

When completed, Oahe Dam will be the biggest rolled earth dam in the world. Its reservoir will extend 250 mi upstream to within 5 mi of Bismarck, N. D., and will be capable of storing a year's flow of the Missouri River past Omaha, Neb.

Army Engineers on the job include H. A. Sikso, chief of the foundation and material branch, and A. H. Bauman, chief of the structure design section. Col. Thomas J. Hayes, 3rd, is Omaha District Engineer.

Two Houston Firms Plan 1,500-Mi Gas Pipeline

Two Houston, Texas, firms have announced plans to build a 1,500-mi gas pipeline from southern Texas to Miami, Fla. Cost is estimated at $185 million.

Houston-Texas Gas and Oil Corp. expects to build about 950 mi of the pipeline from the Mississippi River to Miami. Cost of this section is estimated at $110 million.

Coastal Transmission Corp. plans to build 550 mi of the line from McAllen, Texas, to the Mississippi River at a cost of about $75 million.

The first 600 mi will be 30-in. dia pipe; the rest will be 24-in. and 18-in. dia pipe.

The two firms are preparing to file applications to build the pipeline with the Federal Power Commission.

Upper Colorado Plan Enlarged

25 new projects listed in Senate subcommittee authorization measure

An Upper Colorado River storage project bill of massive proportions last week started on its way to Senate action.

The five-man Senate reclamation subcommittee unanimously approved a $1.7-billion authorization measure that adds more than $700 million to the program endorsed by the Administration. Unanimous subcommittee approval pretty much assured a favorable report by the full Interior Committee this week.

To satisfy the desires of all five states in the upper basin (Wyoming, Utah, Colorado, New Mexico and Arizona), the Senate group wrote into its bill 25 more projects than have been approved by the Interior Department (see accompanying table). The additions include four dams and 22 participating irrigation projects (Navajo Dam and irrigation works actually make up a single project).

The four new dams proposed are: Curecanti on the Gunnison River near Sapinero, Colo.; Flaming Gorge, which straddles the Utah-Wyoming line on the Green River; Juniper on the Yampa River in Colorado; and Navajo on the San Juan River in New Mexico.

Eighteen of the proposed new participating irrigation projects are entirely in Colorado. The Savery-Pot Hook project includes land in both Colorado and Wyoming. The Gooseberry project is in Utah and Navajo and San Juan-Chama are in New Mexico.

The Navajo irrigation project, costing nearly $175 million exclusive of the dam, would irrigate more than 137,000 acres of new land, while San Juan-Chama would furnish supplemental water to 225,000 acres at an estimated cost of $135 million.

High costs per irrigated acre, as illustrated by these two projects, are one of the effective arguments used by opponents of the Upper Colorado development. Water users could not pay the entire cost, and revenues from power would make up the difference.

Glen Canyon and Echo Park are the two big storage dams that the Administration endorses as essential to the project. Power revenues from the 1,000,000 kw of generating capacity at these dams would be used to help pay the costs of irrigation projects.

Three of the four dams added in the Senate bill would increase the available power supply by nearly 140,000 kw: by generating at Juniper, 25,000 kw; at Curecanti, 40,000 kw; and at Flaming Gorge, 72,000 kw. There is no power being generated at Navajo Dam.

Except for Gooseberry, the participating irrigation projects listed in the bill are authorized in name only.

The Senate bill specifically states that no money can be appropriated until these 21 projects shall have been approved and authorized by Congress. In other words, the present bill would give only tentative and not final authorization for the 21 projects.

The bill, in effect, authorizes a more intensive study of the projects and makes a moral commitment that they will get priority consideration as integral parts of the initial phase of the Upper Colorado development.

Further, the measure states that none of the participating projects can be started until the Secretary of the Interior has re-examined their economic feasibility and reported to the President on benefits and costs. He would have to consult with the Secretary of Agriculture on direct agricultural benefits and, also, re-evaluate the indirect benefits.

ENDORSED BY ADMINISTRATION

	Estimated Costs
Storage dams	
Echo Park	$176,426,000
Glen Canyon	421,270,000
Subtotal	**$597,696,000**
Recreational development	
Dinosaur Natl. Monument	**$ 21,000,000**
Participating irrigation projects	
La Barge	1,673,300
Seekskadee	23,272,000
Lyman	10,564,000
Silt	3,356,000
Smith Fork	3,367,000
Paonia	6,944,000
Florida	6,941,500
Pine River Extension	5,027,000
Emery	9,865,500
Central Utah (initial phase)	231,044,000
Hammond	2,302,000
Eden (under constr.)	$7,287,000
Subtotal	**$311,643,300**
Total Administration approvals	**$930,339,300**

ADDED BY SENATE SUBCOMMITTEE

Storage Dams	
Curecanti	$49,305,000
Flaming Gorge	82,942,000
Juniper	16,348,000
Novajo Dam	36,400,000
Subtotal	**$184,995,000**
Participating irrigation projects	
Gooseberry	$5,760,500
San Juan-Chama	135,169,000
Navajo	174,837,300
Porshall	11,881,900
Troublesome	5,243,000
Rabbit Ear	4,733,500
Eagle Divide	3,411,700
Woody Creek	177,700
West Divide	79,675,600
Bluestone	3,329,900
Battlement Mesa	5,853,700
Tormichi Creek	11,523,000
East River	212,000
Ohio Creek	3,402,000
Fruitland Mesa	11,551,000
Bostwick Park	2,634,000
Grand Mesa	20,164,000
Dallas Creek	10,330,000
Savery-Pot Hook	10,814,000
Dolores	24,633,000
Fruit Growers Extension	1,690,000
Sublette	37,099,000
Subtotal	**$564,125,800**
Total Senate additions	**$749,120,800**
Grand total approved by Senate subcommittee	**$1,679,460,000**

News Briefs . . .

Freeway Contract

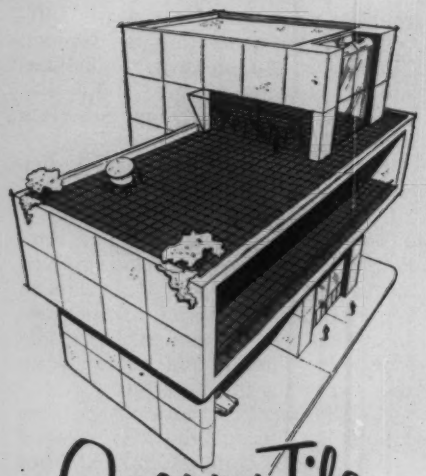
A $5.2-million contract for construction of the first unit of the Embarcadero Freeway in San Francisco has been awarded to MacDonald, Young and Nelson, Inc., San Francisco, and Morrison-Knudsen Co., Boise, Ida. The multi-level terminal separation will run 1.5 mi from the San Francisco-Oakland Bay Bridge around the Bay front to the north and west.

Highway Needs

The Connecticut State Highway Department has estimated that the state's long-range highway construction program would cost $2 billion. Of this total, nearly all was described as "critical deficiencies." Less than $1 million of the total represented "urgent additional needs." Urban expressway projects accounted for approximately $720 million of the total.

Garden State Parkway

New Jersey has announced plans to widen a 13-mi stretch of the Garden State Parkway between Union and the Raritan River, to take care of shore-bound traffic this summer. The job, estimated to cost about $1.6 million will add one lane in each direction to the present four-lane highway.



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CITY BY CITY

Penn Center Revision

Philadelphia—Plans for the transportation center in the $100-million Penn Center have been revised to provide an office building of about 20 stories. Original plans called for a low structure covering an entire block, with a tower office building included as a part of it.

The new building would cover the eastern third of the block fronting on the west side of 17th St. and extending from Market St. to Pennsylvania Blvd. In the middle of this block, behind the projected office building, are low structures forming the entrance into a bus terminal and air terminal offices. The rest of the block is taken up by a three-story parking garage accommodating 800 cars.

Uris Bros., New York specialists in building and managing skyscrapers, now are completing one office building in Penn Center. They reportedly are ready to erect a companion building on the Pennsylvania Blvd. side of the same block as soon as there is enough demand for space to justify the expenditure.

Buildings and improvements completed or under commitment at Penn Center now total nearly $40 million. Additional structures with an estimated value of $60 million will be possible on the rest of the available land.

Penn Center buildings and plazas, plus a 1,000-ft-long, 80-ft-wide esplanade will cover the entire area between City Hall and 18th St., and from Market St. to Pennsylvania Blvd. Plans also include a shop-lined thoroughfare below street level, offering convenient access to a suburban station and to city concourses (ENR Feb. 12, 1953, p. 41).

4,000-Home Community

Marlton, N. J.—Construction of a $55-million community of 4,000 homes is getting under way on a 1,500-acre site just north of Marlton Circle and about 11 mi from the Delaware River Bridge.

The project will add some 20,000 residents to Evesham Township, which had a population of 2,121 in the 1950 census.

The community—to be called Georgetowne—will be divided into four sections, each with curvilinear street patterns. Large tracts of ground have been set aside for public use for schools, churches, parks and playgrounds. In addition, plans call for a 46-acre shopping center plus a $250,000 sewage disposal plant.

The development is expected to be completed by 1958, according to Scott-Shaw, Inc., Gloucester, N. J., residential builders.

Expressway Problem

Columbus, Ohio—Protests from two railroads have halted all planning on one of Columbus' major expressway projects—the Mound St. segment of the city's expressway inner belt.

The New York Central and the Chesapeake & Ohio Railroads want a long viaduct extending from between Furnace and Short Sts. and bridging existing buildings and spur tracks as well as the main railroad lines. Plans for the project, which are three-quarters completed, call for using a fill method of elevating the expressway between Canal and Furnace Sts. A viaduct would carry the two roadways over the railroads.

If the railroads' plans are followed, it reportedly could add as much as $4 million to the estimated $2.5-million cost of the project.

Reservoir Bids Due

Hartford, Conn.—Sometime within the next five weeks bids will be called for on construction of the $10-million Hogback reservoir project.

The 4-mi-long reservoir, designed to hold 7.5-billion gal of water, will take about two years to complete. Plans have received the approval of New York consulting engineers Karl R. Kennison and Thomas H. Wiggin.

The dam will represent the biggest part of the reservoir's construction. Composed of rock-filled earth, it will be 110 ft high, ¼ mi long, and more than 1,000 ft thick at the base.

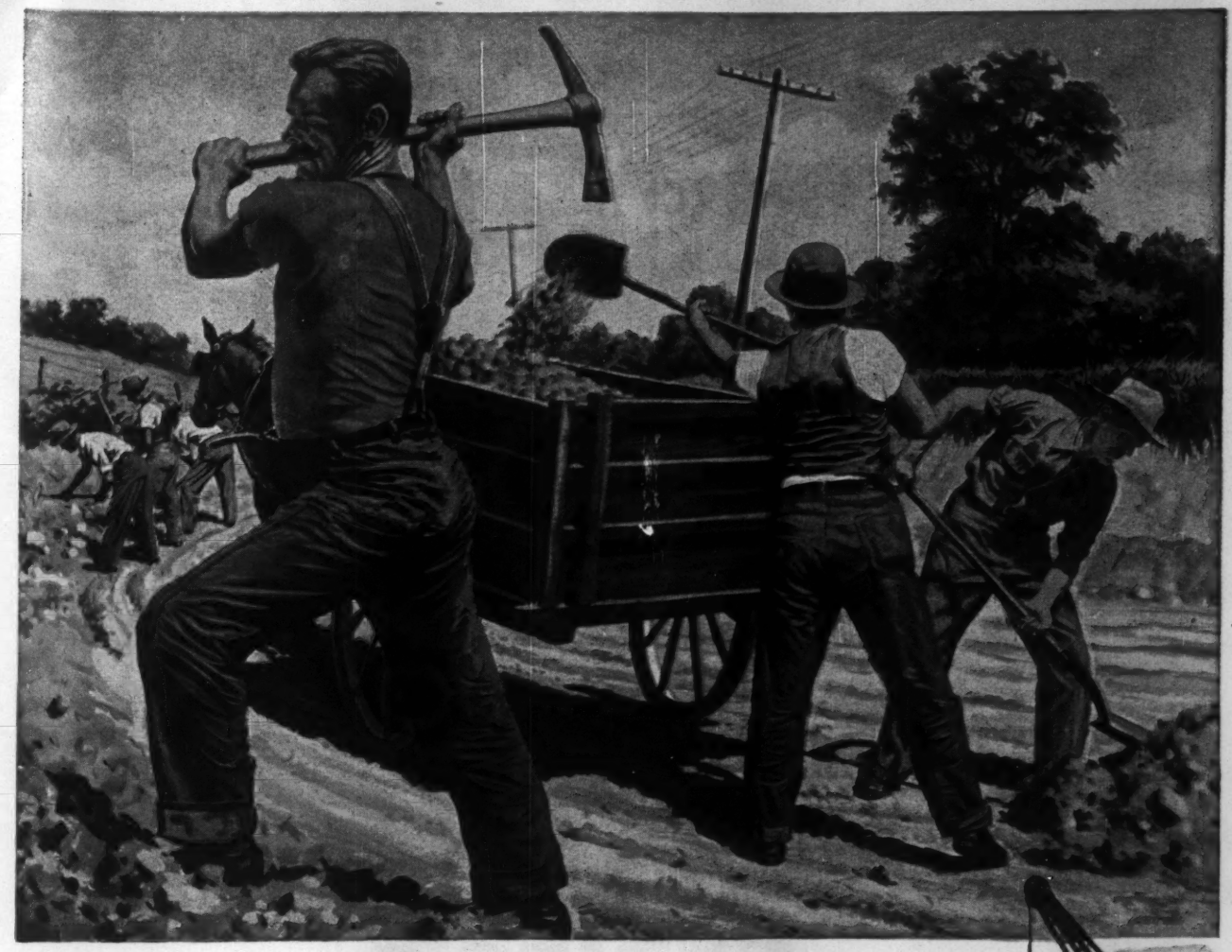
The secondary project will be construction of a 3-mi tunnel connecting the new facility with the existing 30-billion gal Barkhamsted reservoir. The tunnel will be built under a separate contract to be awarded when the dam nears completion.

"Vest-Pocket" Housing

New York City—The New York City Housing Authority's new policy of building "vest-pocket" slum clearance projects will be launched with construction of a $5.5-million development at the southern tip of Chinatown.

The public housing project, to be

(*City by City continued on page 32*)



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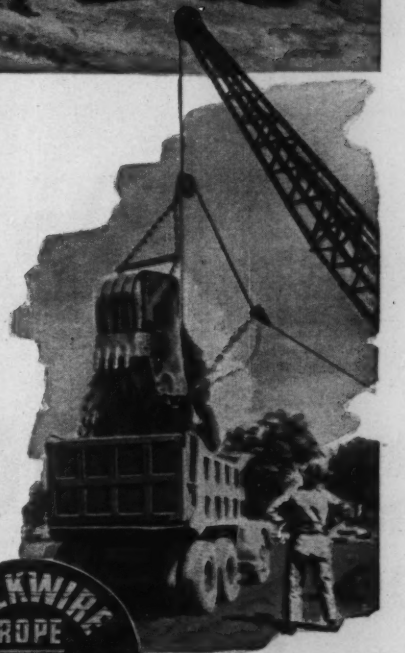

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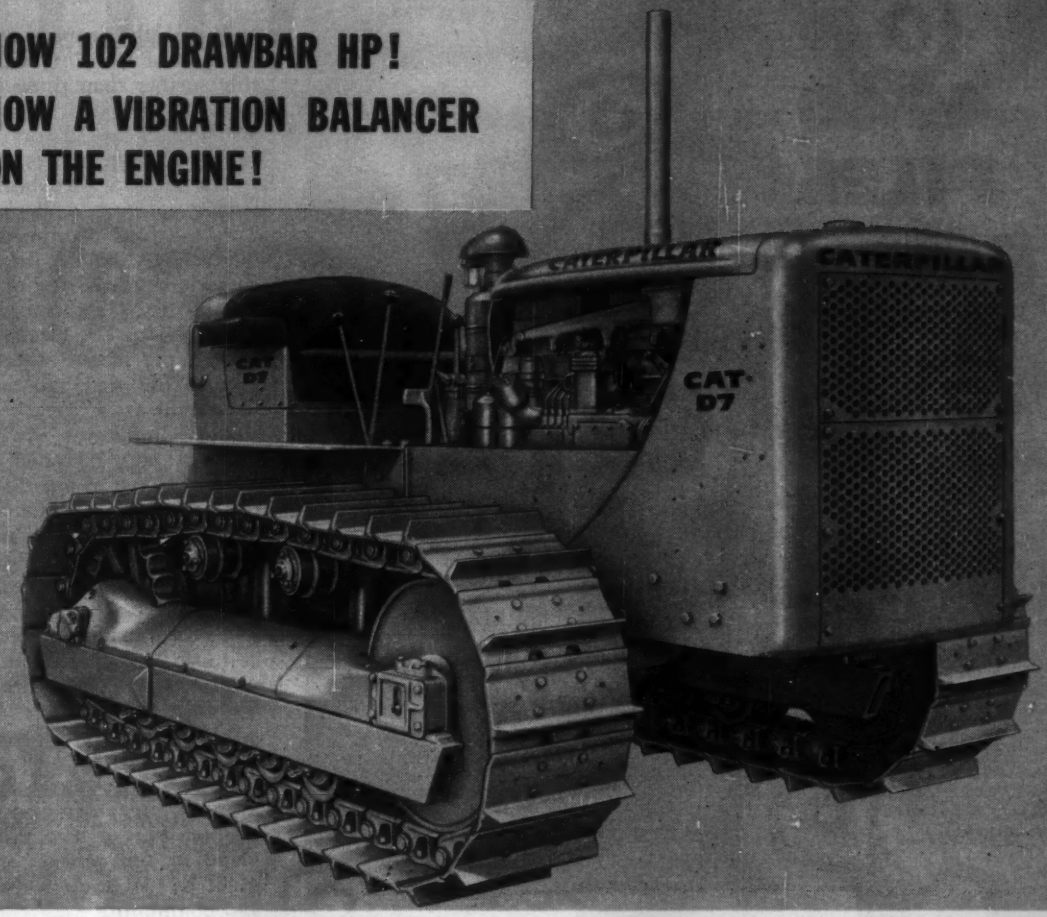

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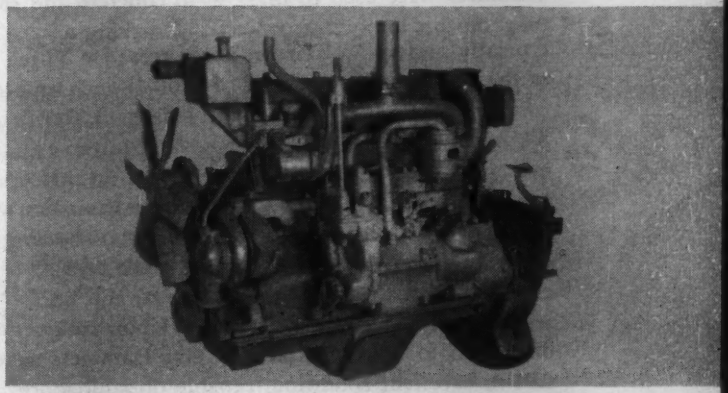

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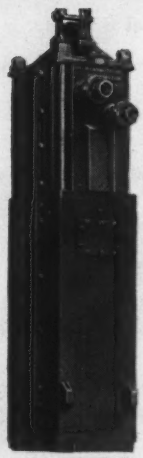

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Plants: Harrison, N. J., Dover, N. J.

built with the financial aid of the State Division of Housing, will be considerably smaller than those built in slum areas in the past. It will consist of just one 20- or 21-story building providing 300 apartments.

The authority has been considering setting up a policy of smaller projects for some time because it has become increasingly difficult to find suitable large slum areas. Most of the sites contain at least a scattering of sound structures—or else clearance would involve more of a dislocation of community life that the authority feels is desirable.

The Chinatown site is a 2.1-acre blighted area bounded generally by Park Row and Worth St. It is one of the few remaining slum sites that can be redeveloped with more housing than will be demolished. And the authority already has recommended to the mayor that the city set a firm policy of providing public housing for at least 50% more families than are displaced by slum clearance public housing.

In addition to the usual off-street parking, landscaped sitting areas and children's play yards, the authority proposes to provide stores in close relation to the new project. It also plans to sell private redevelopers a small part of the site for commercial and community use.

The Board of Estimate will be asked to appropriate about $1,000,000 for construction of an indoor recreation center in Columbus Park, one block north of the Chinatown site.

Rents in the test project will average $14 a room monthly. With Governor Smith Houses (a nearby $19 a room low-rent project) and a moderate-rental Title I project being studied for the intervening area, a pattern of diversified rents will be created. This will avoid over-concentration of a single economic group in the area.

New Source of Revenue

San Francisco—Use of gas tax funds to finance construction and operation of mass transit lines has been recommended as a means of providing better facilities for the San Francisco metropolitan area.

In making its suggestion, the California State Senate Interim Committee on San Francisco Bay Area Metropolitan Rapid Transit Problems pointed to a recent traffic study. It shows that only 13% of the 250,000 persons pouring into the San Francisco-East Bay metropolitan area daily use existing transit lines, while 87% use highways.

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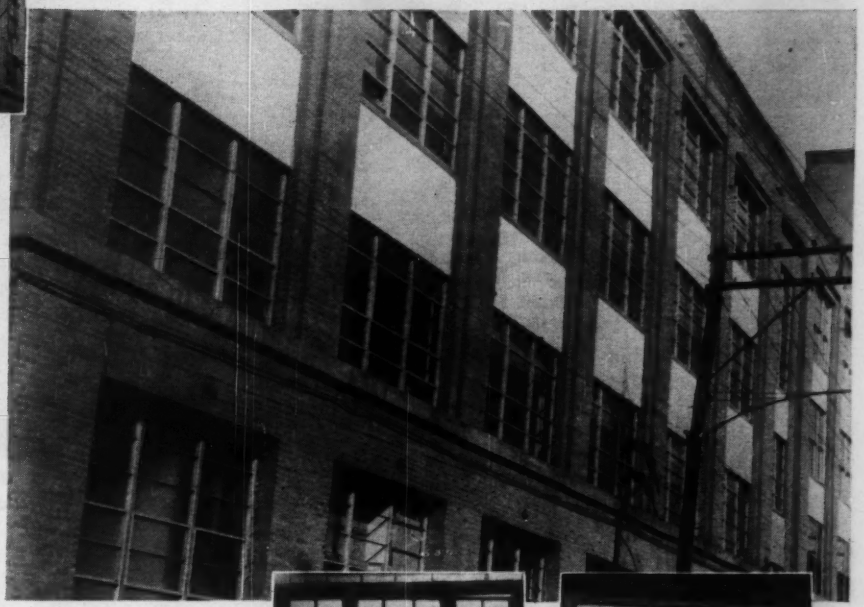
can help you in modernization



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The Bayley Projected Aluminum Window is only one of several types of steel or aluminum Bayley Windows suitable for modernization of all classes of buildings. Each embodies exclusive Bayley developed features and offers these typical advantages:

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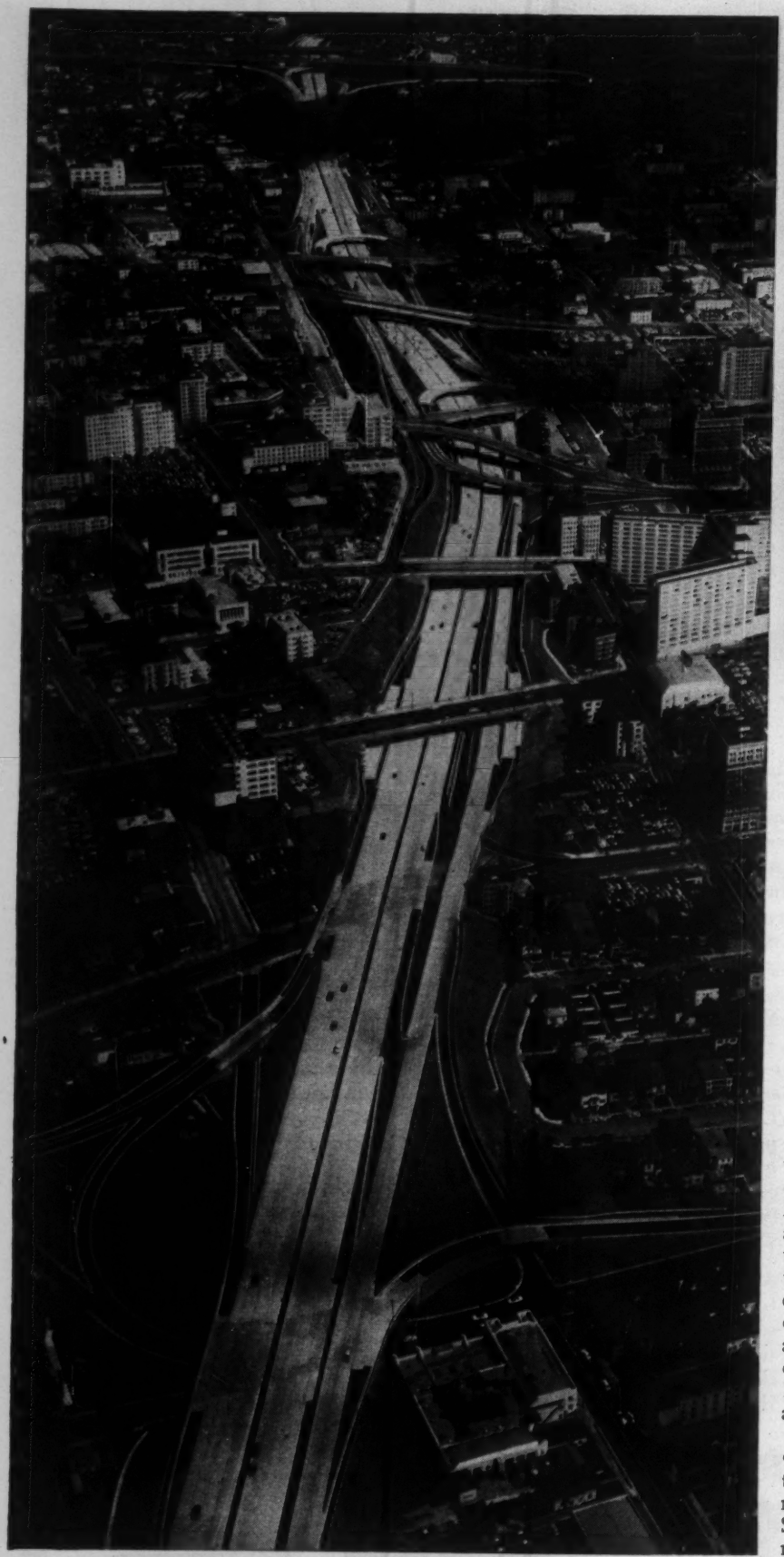


BY-PASSING DOWNTOWN LOS ANGELES proved to be the most expensive part of the Harbor Freeway. Cost for the first 1½ miles approached the figure $20 million. About two-thirds of this cost was used up for right-of-way.

RUSH-HOUR TRAFFIC already jams the completed portion of the freeway. Traffic

Los Angeles Adds

Pay-as-you-go project paced so that each step profits by experience from the last one

Last year a section of the Harbor Freeway in Los Angeles was opened to traffic giving the city a new 3 mile outlet to the south from a point near the heart of the city where the Hollywood, Pasadena and Santa Ana freeways now meet at a four-level interchange.

As now projected, the Harbor Freeway will be 23 miles long, extending due south through the city and part of Los Angeles County to the waterfront at San Pedro. In addition to the section now open to traffic, two sections totaling 4.2 miles in length are under construction, bids soon will be called on a third section 2.4 miles long, and a fourth section of 1.8 miles is budgeted for a start in the fiscal year 1955-56. Right-of-way acquisition on all the remainder is in progress.

• **Eight and Six Lanes**—The freeway is to have eight lanes separated by a median as far south as the proposed Sepulveda Freeway, a distance of nearly 15 miles. South of there it is to have six lanes divided.

Paving on the through lanes is portland-cement concrete, 8-in. thick. En-

THE HARBOR FREEWAY ultimately will stretch 23 miles from the heart of downtown Los Angeles to the harbor area. Only 3 miles are in service. There are four more miles under construction.

count of 125,000 cars a day indicates a definite demand for freeway facilities.

Freeway Mileage

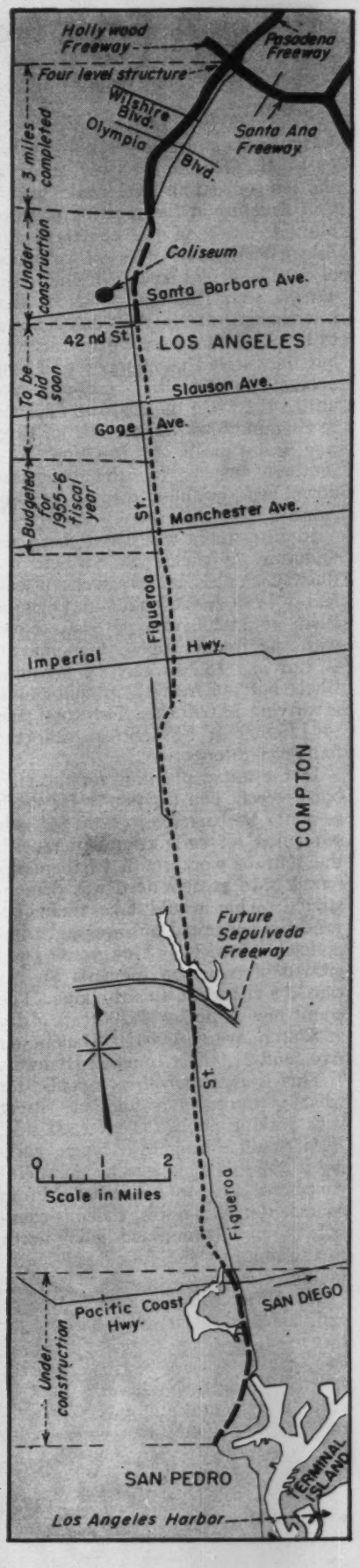
trance and exit lanes are paved with asphaltic concrete. The difference in color makes clear to drivers which are the through lanes.

Total cost of this 23-mile project is put at $100 million, of which more than half has been spent on the north end. Almost $42 million has been spent for right-of-way alone. However, the high cost is justified by the traffic needs. The average daily count on the opened north end already has reached 125,000 cars.

Construction started seven years ago, and present indications are that at least five more years will be required for completion. This seemingly long construction period stems chiefly from two factors: California's highway-finacing policy, and the thousands of details involved in acquiring right-of-way and in designing a freeway where so many structures and utilities are involved. Also, state law requires that a freeway agreement between the state and the local government agencies be signed before right-of-way acquisition can be started.

• **State responsibility**—A basic concept of urban freeway construction in California is that the state government is primarily responsible for those routes that are on the state highway system, even where they pass right through the central part of a city.

Another basic concept is that freeways in California shall be free of tolls as well as free of cross traffic and stop lights. And finally, California finances its highway work on a pay-as-you-go basis, so the amount that can be allocated to any one project in any year is limited by overall state needs. Even so, the current highway budget of $300 million allocates $60 million to the Los Angeles region, which the



BRIDGE STRUCTURES crossing freeway are mostly of box-girder design, many on a curved alignment. Structure on first 1½ miles totaled almost 50% of construction cost.

. . . Los Angeles Freeway

Harbor Freeway must share with other projects.

• **High volume traffic**—As noted previously, the Harbor Freeway starts at the renowned four-level grade separation structure at the meeting of three other freeways in the center of Los Angeles. Actually, it is an extension of the Pasadena Freeway (formerly the Arroyo Seco Parkway) south of that interchange. Its first elements began to be put into service three years ago, but they served merely as feeder connections to the other freeways. Not until 1954 when the route was opened to Olympic Blvd. did the Harbor Freeway really begin to function as a southerly bypass for the congested downtown business district of Los Angeles.

Results, traffic-wise, have been astounding. Figueroa St., which the freeway parallels and in effect replaces, had a 1953 traffic count at Olympic Blvd. of 31,200 cars per day. Now, with the freeway open, Figueroa St. is carrying 18,700 cars at Olympic Blvd., but the freeway, at that point, is carrying 74,000 cars. This total rises to 125,000 at First Street near the four-level intersection.

In the initial planning for the Harbor Freeway, construction as far south as Santa Barbara Ave. (39th St.) was scheduled for early completion, with the start of work south of there deferred until greater need was demonstrated. That would take traffic beyond the congested business and commercial districts. However, rapid growth of traffic on Figueroa St. has caused a change in this thinking. The count now is up to 39,200 cars a day at Sauson Ave., 30,600 at Manchester Ave., and 21,800 at Imperial Highway.

This is extremely heavy traffic for what is normally a four-lane street with parking permitted on each side. As a result, during rush hours, parking is prohibited, expanding the useful pavement area to six lanes. From Manchester Ave. north, traffic is channeled to permit four lanes going north in the morning and four lanes southbound at evening.

The other consideration leading to early extension of Harbor Freeway to the south is that although excellent east-west boulevards exist, there are few north-south boulevards in this area. Thus, by extending the freeway, traffic will be distributed better to the east-west cross thoroughfares by the freeway.

• **A bottleneck at the south-end**—While all of the work to date has been aimed at relieving traffic congestion in the downtown area, a critical situation exists at the south end of the freeway. There, traffic funnels through a heavily-used 4-lane, waterfront street into the Los Angeles Harbor area at San Pero resulting in a traffic count of 29,000 cars a day. To remedy this congestion a contract has been let for a 2.8-mile section of the freeway that will take it from San Pedro north to the Pacific Coast Hwy.—a main east-west thoroughfare.

• **Bigger construction contracts**—Most of the construction now in progress near the north end is covered by a single contract of $3.1 million held by J. E. Haddock Ltd. Only parts not covered are relocations of storm and sanitary sewers and 20% of the embankments, which were covered by earlier contracts. This represents a change in policy from the initial work, which was subdivided into numerous smaller contracts.

Similarly, the current construction work at the south end is covered by a single $3.1 million contract held by the Vinnell Co. and Vinnell Contractors, a joint venture.

• **Right-of-way acquisition**—With minor exceptions, start of right-of-way purchasing has preceded construction by about two years. This provides time to acquire property that might be tied up in condemnation. More than 90% of the property is acquired by negotiation. And it provides time to clear the property of existing improvements. This is accomplished by sale at public auction, if the improvements are salvagable. Frame structures, generally have been moved to other sites. Brick or concrete structures have been torn down.

About half the total cost of the work goes for right-of-way. Involved are almost 3,000 separate parcels of land with an estimated cost of more than $53 million. By late last year all but about 500 of these parcels had been acquired. And those remaining are on parts of the freeway not scheduled for construction for well over a year.

• **Design difficult**—Perhaps the most difficult phase of the Harbor Freeway development is design, and one of the most involved elements of that design work is relocation of utilities. Another is locating the roadways and structures to minimize acquisition cost.

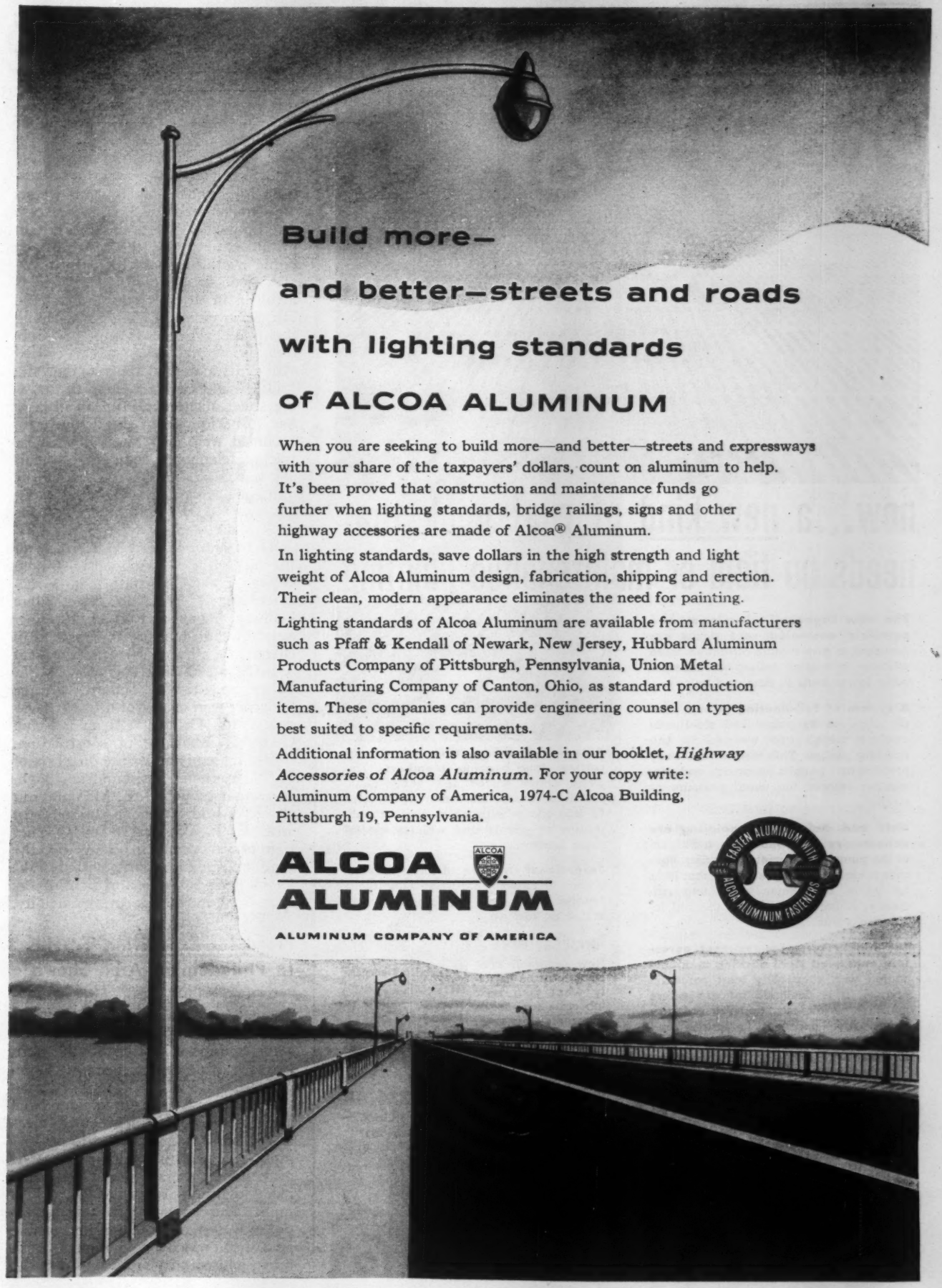
For example, the southerly part of the Harbor Freeway traverses an oil-producing area. Its route literally had to dodge oil wells that would have been prohibitively expensive to move or acquire.

At 23rd St., engineers considered four different alignments each of which necessitated moving of an expansive installation. Involved were a large Catholic church, a newly built Episcopal church, a parochial school, or part of the University of Southern California's fraternity row. The route that was finally selected took out the parochial school, largely because the building was old and the sisterhood did not mind moving to another location where more play room would be available.

New design lessons are being learned through use of completed parts of the facility. Traffic just south of the four-level structure is slowed during rush hours by cars weaving from one lane to another on entering the freeway and in preparation for leaving the freeway. Traffic counts on weaving were revealed in a paper by District Engineer Paul O. Harding at the 1955 San Diego ASCE convention. This shows that although volume of traffic and weaving is heavy, the five lanes at this point are carrying 1,500 cars an hour. Specifically, 2,100 vehicles an hour are traveling straight through on the freeway and 1,500 straight through on collector roads. And while this is done, 1,400 vehicles an hour are weaving across 2,400 vehicles an hour. And although this portion of the freeway is carrying a fantastically heavy volume of traffic, the weaving data are being studied to devise better ways of handling such traffic movements.

• **Relocation of utilities**—Utilities relocation is tough, not only because of design problems involved but because of the agreements that have to be negotiated. Some of these are now becoming standard. For example, the telephone company now pays 50% of the cost of relocating its facilities, but it specifies that it must be notified at least 18 months in advance of necessary relocation because of the time required in ordering telephone cable.

One of the biggest bottlenecks in relocation work is reaching agreements with the railroads as to cost percentages. So far the railroads have insisted that agreements be negotiated in advance; they will not let work proceed without an understanding regarding cost allocations where grade crossings are closed. On federal-aid projects, the railroad participation is limited by a federal ruling to 10%. Where no federal funds are involved, a recent U. S. Supreme Court decision in certain Los Angeles grade separation cases indicates that railroads can be required to pay 50% of the costs—even if con-



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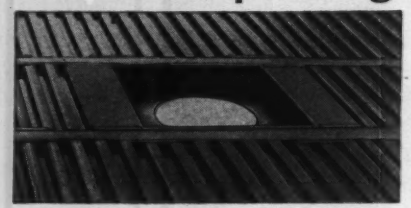

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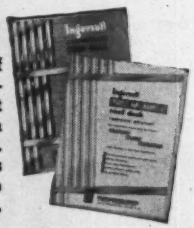

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struction includes only the widening of an existing underpass.

This stumbling block is far from local. California highway designers consider it as a serious threat to progress on an increased highway program such as might develop as a result of the President's recent $50-billion, 10-year, highway construction proposal.

Generally, utilities pay for relocation work when they are using streets on a franchise basis. But, in the case of oil pipelines, where the lines are on private right-of-way, the cost must be borne by the highway department.

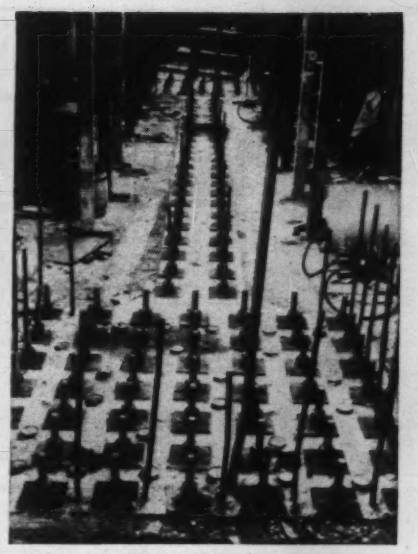
A good example of complications involved in utilities relocation is the 7th St. overcrossing bridge adjoining the Statler Hotel. During construction, heavy traffic had to be carried over a temporary detour so that the bridge might be built along the existing street alignment. And all utilities had to be located in the detour area. Included were two lines of streetcar tracks, telephone company conduit and cables, a 30-in. water main, the city light department's distribution facilities, and the telegraph company conduit and cable.

The Harbor Freeway is a project of the California Division of Highways, George T. McCoy, state highway engineer and R. M. Gillis, deputy state highway engineer. Paul O. Harding, assistant state highway engineer, is in charge of District VII. His two main deputies are district engineers W. L. Fahey and E. T. Telford. George Langsner is in charge of urban freeway design for District VII and Frank Cressy is in charge of construction. Bridge design is under the direction of F. W. Panhorst, assistant state highway engineer, with J. E. McMahon in charge of bridge work in the southern area. E. F. Wagner is deputy chief right-of-way agent in charge of the southern California area with H. W. Leonard responsible for right-of-way acquisition in the Los Angeles vicinity.

Need for Expediting Traffic In Philadelphia Area Shown

The area within 30 minutes driving distance of mid-city Philadelphia could be tripled by an expressway network envisioned by the Southeastern Pennsylvania Regional Planning Commission.

A five-county field survey found the average speed in undeveloped areas during off-peak traffic hours to be 36.7 mph; 22.2 mph in built up areas. At peak hours, average speed on many radial highways dropped as low as 12.8 mph. The survey report said an expressway system would make possible an average speed of 45 mph in both urban and country areas.



Prestressed I-Shaped Wall Aids . . .

. . . 9-Story Garage to Resist 'Quakes

Key element in resisting seismic forces in a 9-story reinforced concrete parking garage in San Francisco is a prestressed concrete shear wall near one corner. This solution to the earthquake problem was arrived at because:

1. The building is of flat-slab construction, with slabs and columns unable to carry the lateral forces without heavy additional reinforcing and serious lateral deflections.

2. Exterior walls are present at one end and one side only; so the 275x137½-ft rectangular building would be subjected to enormous torsional moments by seismic forces and would be unstable if additional resisting elements were not provided. Furthermore, other buildings adjoining the outer walls might be damaged by substantial movement of these walls.

3. A shear wall could be built inside spiral ramps near one corner of the building to take the lateral forces and yet not subtract from the space available for car stalls.

The Downtown Center Garage, which presented this design problem, will provide self-service parking for 1,200 cars. Access to the various floors, which are 8 ft 6 in. apart, is by way of two circular ramps, with minimum turning diameter of 38 ft and 10% slope. The up ramp encircles the down ramp.

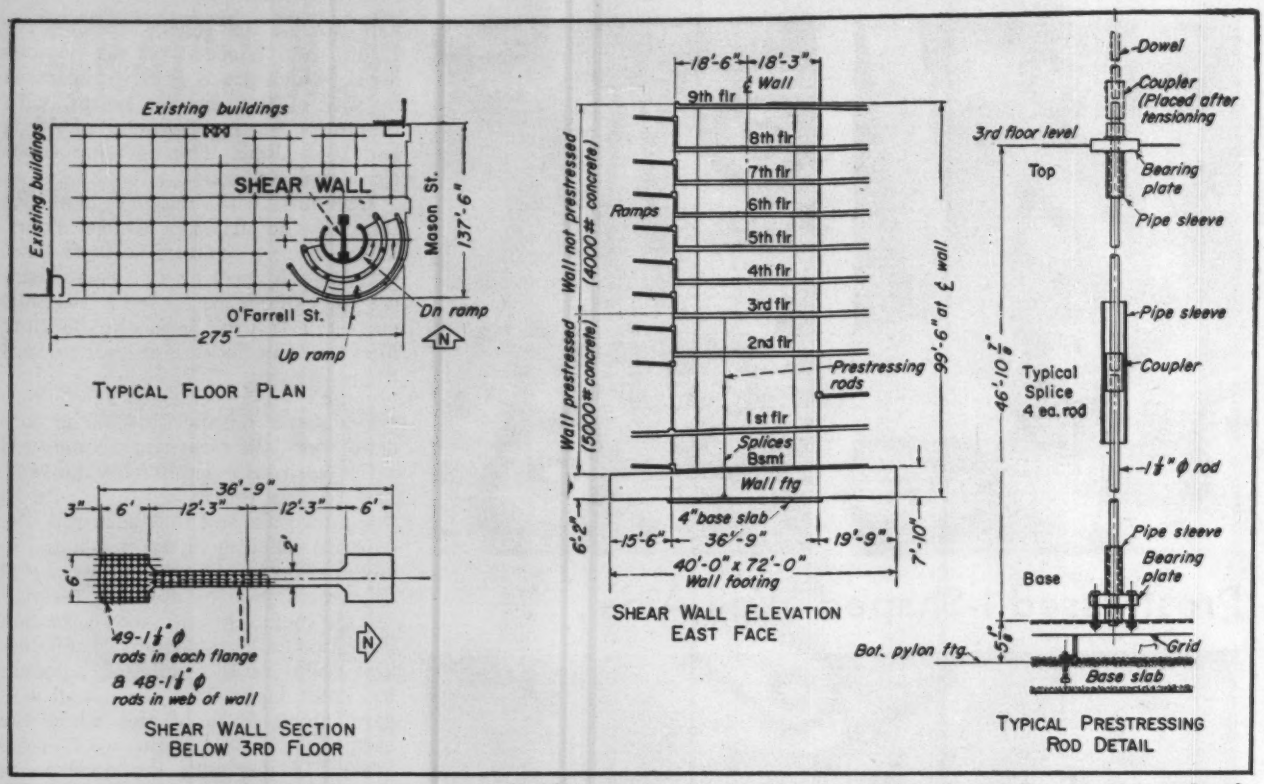
Columns with tapered haunches support the flat-slab garage floors. Their spacing creates 25x26½-ft bays. On the two street fronts, where there are no exterior walls, outer columns are set 9 ft back from the building lines and the floors cantilever beyond them.

• **Walls take seismic blows**—The concrete floors, the designers assume, will act as horizontal diaphragms transmitting seismic shears and moments to the outer walls and the shear wall, the columns offering little resistance to lateral forces. The total horizontal force, computed by applying the 6% seismic coefficient specified in the San Francisco building code to the 60,000-kip weight of the building, amounts to 3,600 kips. The shear wall will carry about 68% of this when the earthquake occurs at the worst angle (about 26 deg with the north-south axis), because it is nearer to the center of mass of the building than the outer walls.

Under seismic loading, the shear wall will act as a 100-ft vertical cantilever. Oriented along a north-south axis, it is I-shape in section, 36 ft 9 in. long, with 6x6-ft flanges. The web is 2 ft thick. The concrete foundation on which it rests is 40x72 ft in plan and has a 7-ft average thickness.

• **Prestressing cuts costs**—Calculations indicated that most of the deflection of the shear wall under lateral forces is caused by bending in the lower portion. To reduce the deflection at low cost, only the bottom 40 ft of the shear wall was prestressed. The deflection at the top thus can be kept to ½ in., as compared with 1½ in. for ordinary reinforced concrete throughout. With the ½-in. deflection, the columns can carry the resulting seismic bending moments without additional reinforcement. So though prestressing the bottom 40 ft did not reduce the cost of the shear wall, it resulted in savings elsewhere in the structure.

The amount of prestress required was determined by the condition that no tensile stress would be created in the shear wall under seismic loading. Calculations showed that the entire concrete section would have to be prestressed to 769 psi, or with a total force of 13,300 kips. Since the tendons have to be placed vertically, the designers chose cold-worked, alloy steel bars to apply this prestress, elim-



FLAT-SLAB GARAGE has walls at only one end and side, requiring assistance from a concrete shear wall in resisting earthquake forces. The lower 40 ft of this wall was prestressed with steel bars, which were coupled above each 10-ft wall pour.

inating the need for scaffolding that would have been needed with wires or strands.

A total of 146 bars 1⅛ in. in diameter were required. These provided a factor of safety of 1.65 against cracking; so the designers deemed it unnecessary to bond the tendons to the concrete.

Bars were ordered in lengths adequate to permit coupling them above each 10-ft wall pour. (They are manufactured with tapered threads, to develop almost the full strength of the cross section at splices and end anchorages.) Stressed initially to 110,000 psi, the tendons are expected to maintain an effective tension of at least 95,000 psi.

The prestress was applied to the tendons at third-floor level with hydraulic jacks. A nut was tightened on the end of each bar to maintain tension and transfer the force through bearing plates to the wall concrete.

• **More strength than expected**—Concrete in the prestressed portion of the shear wall was assumed in the design to have a 28-day strength of 4,000 psi, but actually 5,000 psi was used. In addition to the prestressing steel, stirrups were incorporated in the web, and mild steel rods were spaced around the exterior, to serve as shrinkage and spacing bars.

For the upper portion of the shear wall, 4,000-psi concrete was used. Reinforcement in flanges varies from forty-nine No. 11 bars in the third story to sixteen No. 11 bars in the top, and in the web from twenty-four No. 9 bars in the third story to twenty-four No. 7 bars in the top. The reinforcing bars are spliced to the tendons at the junction with the prestressed portion of the wall.

George A. Applegarth was the architect for the Downtown Center Garage. Ellison and King were consulting structural engineers, with design and supervision under John K. Rode and John Cherno. Prof. T. Y. Lin, of the University of California, was consultant on earthquake forces and prestressing. Cahill Construction Co. was the general contractor, with John Nelson as superintendent. (All these firms have headquarters in San Francisco.) Prestressing bars were installed and tensioned by Truscon Steel Division, Republic Steel Corp.

ONE-WAY RAMPS spiral around the shear wall at one corner of the building.

General Contractor: Chemical Construction Company, 488 Madison Ave., N.Y. *Approved Corrugated Asbestone Contractor: Taylor-Siedenbach, Inc., New Orleans, La.*

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Weights and sizes:	Standard 400
Width	42"
Lengths	1' to 12' (in 6" increments)
Thickness	Approx. 3/8" at the crests and vales, 1/16" at flanks.
Pitch	4.2"
Weight	4 lbs. per sq. ft.
Color	Natural Cement Gray
Depth of Corrugation	1½"
Applications Specifications:	
Minimum Roof Slope	3" rise in 12"
Maximum purlin (roof) spacing	4'-6"
Maximum girt (side wall) spacing	5'-6"
Weight per net square, including side and end laps	Approx. 500 lbs.
Minimum side lap	1 corrugation (4.2")
Minimum end lap	6"

Refer to Sweets—AIA File 12-F

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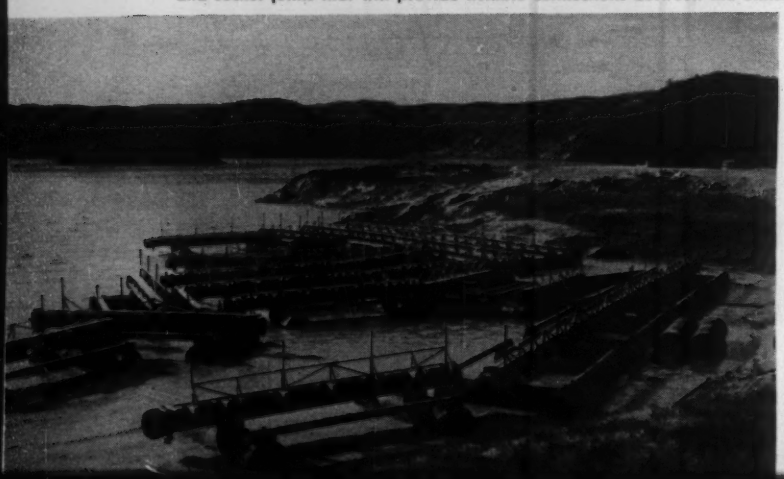
Moving a lake over a mountain through 4-mile dual pipe line

Climbing slopes as steep as 12 per cent, the pipe line winds 4 miles up and over Mando ridge. All field connections were made with mechanical joints which permit uncoupling of the sections for installation of new liner plates.

The floating section consists of units such as these, made up of lengths of 36-inch-ID flanged pipe bolted together. Clearly visible are the ball and socket joints that will provide flexible connections between the units.



Abrasion-resisting liner protects pipe in mammoth Canadian dredging operation

Probably the biggest, and certainly one of the most spectacular dredging projects ever attempted is now getting under way near Atikokan in the Province of Ontario. It calls for the removal from Steep Rock lake of an estimated 160 million cubic yards of mud, boulder clay, rock and sediment, as well as perhaps five times that volume of water.

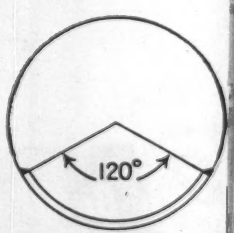
This material will be pumped through a 4-mile dual line of Bethlehem steel pipe to a height of over 700 feet into a neighboring lake. Completion of the project will allow Caland Ore Co., Ltd., a subsidiary of Inland Steel Company, to mine the rich deposit of iron ore now buried under the bed of the lake.

Pipe Line Problems

The pipe line is unusual in many respects. Consisting of both water-borne and overland sections, it will withstand severe abrasion and high pressure day after day for five years.

Probably the toughest problem in pipe design was due to abrasion. The lake bottom includes masses of boulder clay and boulders up to 2 feet in diameter. The most powerful dredging pumps ever made will impel this material through the twin lines at a speed of about 1320 feet per minute. That means 110,000 gallons of extremely abrasive material surging through the pipe every minute!

Abrasion-resisting Liner



The dredging contractor, Construction Aggregates Corp., solved the problem of abrasion by calling for a protective pipe liner consisting of curved plates of SAE 1040 steel. These plates are ½-inch thick except at points of heaviest wear where ⅜-inch-thick plate is used. The plates were welded over a 120-degree arc inside the pipe (as shown in the accompanying sketch) during fabrication at Bethlehem's large-diameter pipe shop in Steelton, Pa.

A unique feature is that when the lining becomes worn

Shown here in progress, the dual line of Bethlehem steel pipe ascends from the Falls Bay arm of Steep Rock lake. This arm, a good-sized lake in itself, has been dammed off from the lake proper.

past serviceability, the pipe sections can be uncoupled, rotated through 180 degrees, new liner plates welded to what was formerly the top inner surface, and the sections rejoined.

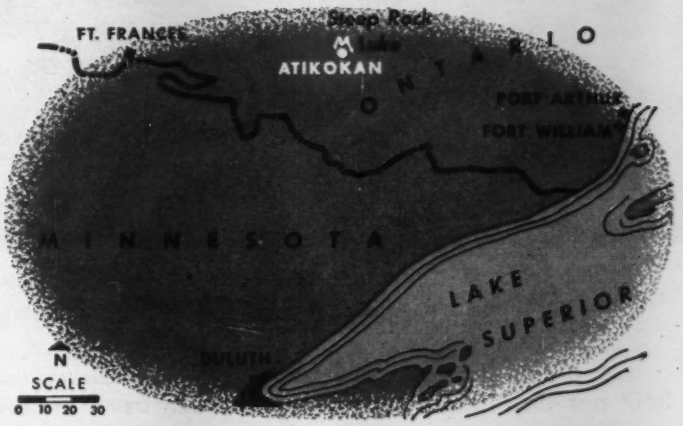
The pipe was also designed to withstand pressures up to 400 psi. While normal operation is at 150 psi, the higher pressures may build up if the line becomes jammed with bulky material.

Floating Section

Another unusual aspect of the pipe line is the floating section that runs from the dredges to the shore. It is made up of separate floating units connected with ball and socket joints for maximum flexibility. These units, in turn, consist of multiple lengths of flanged pipe, bolted together and mounted on cylindrical steel pontoons. Bethlehem supplied 12,500 feet of flanged pipe for this part of the line.

The entire line required 61,000 linear feet of pipe, the inside diameter for the most part being 42 inches and the wall thickness ⅝ inch. It was supplied by Bethlehem in longitudinally welded 50-ft lengths. These lengths were joined in the field with mechanical couplings.

Pipe line projects as remarkable as this are extremely rare, of course. However, through the years Bethlehem steel pipe has performed a great many challenging jobs. Penstocks. Water supply and sewage lines. Projects large and small from



This simplified map shows the remote location of the dredging operation at Atikokan, about 160 air miles north of Duluth. The nearest sizable town is Fort Frances, 75 miles to the west.

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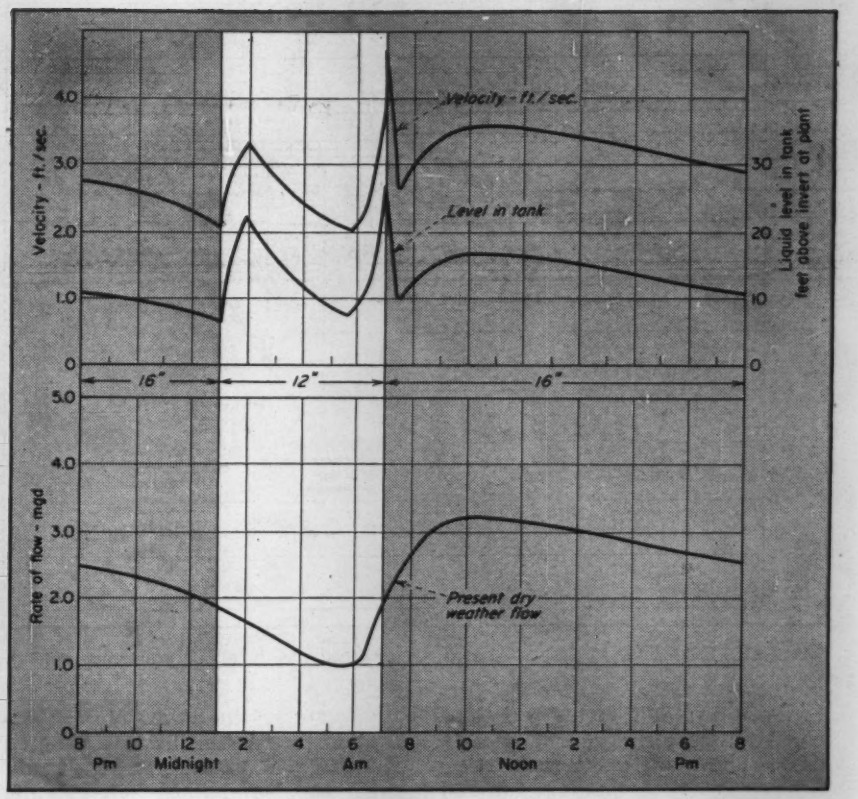


. . . this flow action that is the result of automatic control of flow in dual main.

Ingenuity Solves Tri-level Sewerage Problem

One Einstein theory—that an active imagination is often more important than knowledge—has found illustration in the recent solution of what to do with the Peekskill, N. Y., sewage collection and transmission problem.

Any competent sanitary engineering firm might have found an adequate solution for Peekskill, but it took considerable imagination to transform the city's knotty collection problem into a distinct advantage.

Peekskill's location on the banks of two streams—the Hudson River on the west and Annsville Creek to the north—originally made its disposal problem a simple one. As its sprawling system grew, outfall after outfall was carried to a convenient river bank for discharge of its raw sewage. Haphazard growth continued until six outfalls were pouring an average daily raw-sewage, dry-weather volume of more than 2.5 million gallons into the Hudson River.

The problem of picking up the six outfalls with a single interceptor was complicated by topography. Most of the wide-flung system was at an elevation in excess of 70 ft, with steep slopes leading to water-front areas.

• **Several solutions**—A study of six possible treatment plant sites soon made it apparent that five of them would entail not only major alteration to the high-level collection system, but also would necessitate high-capacity pumping stations, interceptors and excessive costs in construction and operation of plants at each site. Consideration of building two plants was abandoned as too costly from initial-outlay as well as operational and maintenance angles.

The sixth site, situated on Annsville Creek, finally evolved as the optimum location despite construction of a mile-long force main that would be needed to convey 80% of the city's sewage to the plant.

When it was established that a second plant to serve the northeasterly section of town was out of the question, the force main was of little economic consequence, for regardless of where a single plant was located, a long transmission main was necessary if all city sewage was to be treated at one plant site.

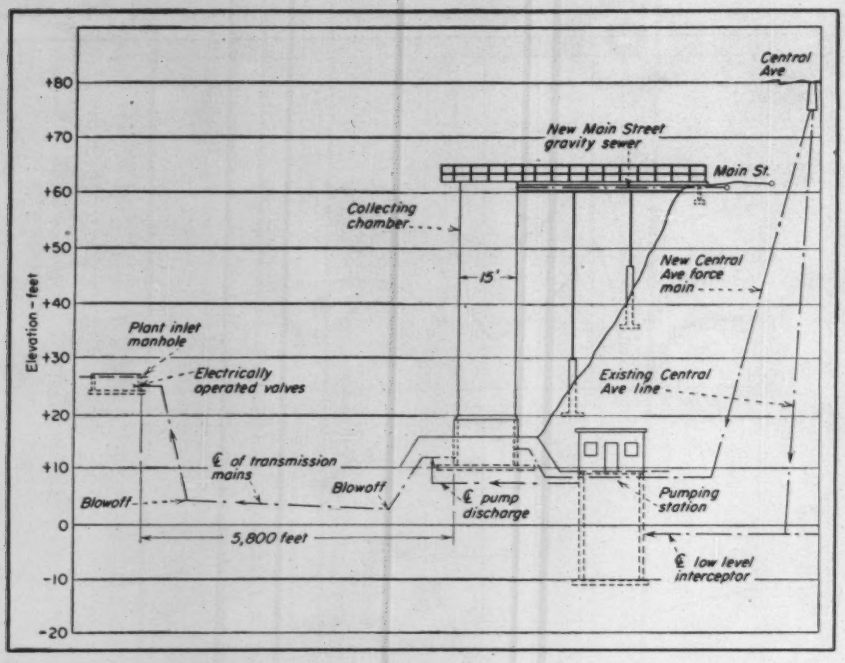
Existing grade elevations at the proposed treatment plant site was + 10 to + 20, and the flow line was established at + 25. Since most of the city's sewerage was laid out at high level, the designer studied the practicability of using this difference in head to convey sewage to the plant by gravity flow in a force main.

• **Standpipe selected**—It was decided that a standpipe would maintain the pressure head necessary for transmission of sewage to the plant, and the best location for the structure seemed to be where street mains could be picked up along with a direct connection—through a pumping station—with an existing low-level interceptor carrying sewage from the southern sections of the city.

One site seemed to answer all three requirements. Centrally located at the base of the steep slope on water-front level, a tract was selected that was large enough to accommodate the pumping station as well as the collection tank. In addition, its ground elevation was +10 as compared with that of Main Street, which at the top of the slope had a major sewer main with an invert above +60.

Main Street sewerage could be tapped in at the top of the standpipe. Central Avenue to the south, connected with the low-level line under the original layout plan, could be diverted at an elevation +75, to a new force main connection into the lower portion of the standpipe, letting all flow at elevations below the diversion go into the low-level interceptor through the existing main.

The standpipe is a conical bottom



COLLECTING CHAMBER is shown schematically as heart of collecting system.

15-ft-dia by 50-ft-high steel tank, mounted on a brick-faced concrete base. The Main Street sewer is carried to the tank by means of two 90-ft girders, which also support an access walkway to the top of the tank. Flow from the Main St. Line is by gravity.

• **Transmission line problems** – To eliminate grit removal at the standpipe location, a 2-ft-per-sec minimum velocity was assigned to the transmission line, and it soon became obvious that no single pipe installation would maintain this velocity under the rather wide range of flows—1.0 mgd dry weather to 5.0 mgd wet weather maximum flow. It was found that one 12-in. and one 16-in. pipe would maintain desired velocities with proper control.

Present dry weather flow reaches its minimum of 1.0 mgd at 6 A.M., rising rapidly to the maximum of 3.3 mgd at 10 A.M. At these rates, investigation showed that, with the 16-in. pipe carrying all the flow, velocity would fall to the critical 2 fps at 1 A.M., with head in standpipe at six ft above invert level at treatment plant.

As this condition was approached, automatically controlled valves at the plant would transfer all flow to the 12-in. line, thereby raising the level in the standpipe to 23 ft., and resulting in a scouring velocity of 3.4 fps. From 2 A.M., flows in the smaller line would diminish until the level in the tank dropped to nine ft above plant invert, and velocities dropped once again close to the critical 2 fps.

By 7 A.M., the rapid build-up of waste flow would reach 2 mgd, with a velocity in the 12-in. pipe at 4.6 fps and the level in the tank at 27 ft. At this point, transfer of flow would again be accomplished automatically through valves at the plant. The surge on the 16-in. pipe would flush sediment to grit chambers at the plant, leaving the line free to transmit sewage until 1 A.M., when the 12-in. main would once again take over the flow during low-volume hours.

The 12 and 16-in. valves at the end of the transmission lines are controlled by liquid level in the standpipe. The liquid level activates a chronoflo transmitter which transmits water levels to an indicator-recorder at the plant. Electrical contacts on this recorder control the valves.

The mile-long parallel transmission lines, carrying 25 psi at the low point, had to be pressure pipe, especially since a large portion of the route lay along a secondary road.

A survey disclosed a rock shelf below road grade that limited cover over this portion to 18 to 24 in. Asbestos cement pipes—in both sizes—were tested side by side under field conditions. A truck with an 18,000-lb axle load was run over the test pipe. Finally the truck was rolled over a 4 x 12 plank, and let run off the timber directly over the pipe.

Subsequent hydraulic tests, during which pipe sections were subjected to 400 psi pressure, disclosed no damage. Asbestos cement pipe was specified for the dual line.

• **Imagination aids plant design**—Making a bad topographical situation serve a useful purpose was only one of the ways whereby designers bolstered technical know-how with imagination.

A conventional treatment problem, the Peekskill plant design called for conventional planning. However, to increase efficiency, several unusual details were incorporated into the plant.

1. Two rows of transverse flocculator paddles were installed in the entrance end of the sedimentation basins, and flight scrapers were extended under these paddles to prevent build-up of solids. Since the paddles may pick up sludge during operation of the scrapers, four-speed drives enable reduction in paddle speeds during sludge withdrawal. Submerged weirs on flocculator baffles enable passage of floating solids.

2. Flight scrapers discharge to four steeply sloped hoppers. High pressure water taps, up- and down-stream of sludge valves, provide ready flushing.

3. Push button controls for both raw sludge and digested sludge recirculating pumps, are located adjacent to the sludge sight-manhole at the sedimentation basin. Digested sludge is always recirculated during pumpage of raw sludge, at a ratio of 2:1. Since digested sludge is maintained at 90°F, raw sludge is raised during winter months from about 60°F to 80°F.

4. Sedimentation basins are roofed-over and covered with turf to avoid thermal overturns.

5. A Kennison nozzle is installed in the comminuter basin to control velocity in the grit chamber, to enable measurement of flow, and to enable proportioning of both chlorine and chemicals for coagulation.

6. Digesters were constructed with a one in. insulated air space around exterior walls. Weephole drains carry condensation to gravel pockets outside the periphery of the tank. There are four raw sludge inlet lines to each digester, located in quadrants, for rotational discharge of raw sludge. An agitator is mounted on the gas dome of each floating cover to prevent a build-up of scum.

While none of these features constitutes radical departures from conventional design, they do add up to increased efficiency of the plant.

Design of the plant, as well as the size of the tract, allows for alteration for higher degree of treatment and expansion of facilities as required.

Villard Contracting Co., of Hastings-on-Hudson, N. Y., has handled contracts for standpipe, pumping station, transmission pipeline at $333,491, plus treatment plant construction at approximately $600,000.

Design of all facilities was done by Thomas M. Riddick, consulting engineer of New York City, with his associate, Norman L. Lindsay.

Playing it Safe . . .

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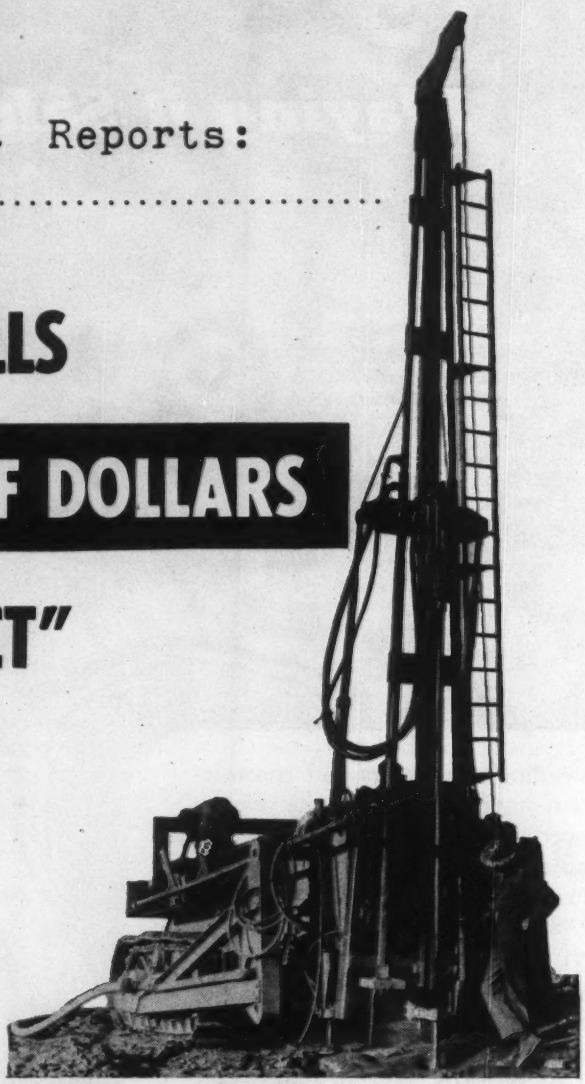

Two Joy TWM-3 Challenger Hammer Drills were tried on this project after difficulty had been experienced in maintaining drilling schedules. Six 4" Wagon Drills had been barely able to keep the 3-yard shovel in rock.

The Two Joy Challengers not only easily kept ahead of the shovel, but also reduced labor and powder costs. The contractor was so impressed with this performance that he added a *third* Challenger when it became necessary to increase the depth of cut to 100 ft.

The drilling superintendent then enthusiastically reported that he was saving his company "thousands of dollars" by being able to make this deep cut so economically with his Challenger drills. The table at right compares production figures of the two types of drills.

The revolutionary TWM-3 Challenger is a "package" unit for mounting on a used crawler-tread tractor or similar vehicle. The package consists of mounting brackets, mast, and a powerful 5¼" hammer drill . . . the largest ever built. Maximum hole size is 4½".

For complete details on the Joy Challenger, write for Bulletin 87-U to ***Joy Manufacturing Company, Oliver Building, Pittsburgh 22, Pa.*** In Canada: *Joy Manufacturing Company (Canada) Limited, Galt, Ontario*

DRILL PERFORMANCE Wagon Drill vs. Joy Challenger

	1 Wagon Drill	1 Challenger
Bit Size	2½"	4"
Hole Spacing	6' x 6'	15' x 15'
Hole Depth	24' (max)	35' to 40' (later 100')
Footage drilled per shift	200'	180'
Yardage per foot drilled	1⅓	8½
Yardage per shift	270	1400

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JOY

CONSTRUCTION EQUIPMENT MANUFACTURERS FOR OVER HALF A CENTURY

Blasting—
It's Also a Public Relations Problem

John L. Romig
Assistant Manager, Technical Division
Atlas Powder Company

The roar of heavy equipment and the rumble of blasting are harbingers of spring as certain as the first robin.

And, as surely as summer follows spring, the emergence of the heavy construction industry from its winter rest will be followed by reports of contractors in trouble with their neighbors. You can bet that blasting will be the chief scapegoat. Litigation, fines and even jail sentences are among the penalties threatening those who blast incautiously in populated areas.

Uncontrolled blasting is probably the greatest ruffler of public good will: The shock and surprise of a blast, coupled with the general fear of explosives held by the lay public, makes the reaction to blasting especially volatile.

Much of the grief caused by blasting is unnecessary. Most of it is being eliminated by contractors who choose and use explosives with the same care that they employ with other equipment. Developments in explosives manufacture and technique in recent years provide the blaster with better explosives than ever before and with many means to control his shots—to do the work necessary while minimizing the danger of adverse public reaction.

• **Problem**—The importance of maintaining good public relations is clear enough to most contractors, especially those engaged in projects in heavily populated areas. Contractors engaged in this type of work know that the loss of public goodwill can cost them time and money. And once lost, public esteem is exceedingly hard to regain.

Air blast, flying rock and ground vibration (and imagination)—the natural results of all explosions—are the blast effects that are responsible for the most trouble.

• **Remedies**—Damage caused by flying rock is probably the easiest to assess and easiest to control under normal conditions. The remedies include adequate stemming, proper powder factor, initiation of the blast at the point of maximum confinement, and the use, wherever they are necessary, of wire-rope mats.

The damage caused by ground vibration is another story. Many fantastic claims have arisen from this source. These claims are often exaggerated because of the human reaction to the accompanying air "snap". In the past, accurate scientific records of ground vibrations and explanations of their effects have been ignored by juries in favor of the imaginative claims of the claimant.

However, with the increased prestige of seismograph companies and judicial recognition of the value of their opinion, seismic recordings can usually settle any doubt as to the actual structural damage due to ground vibration.

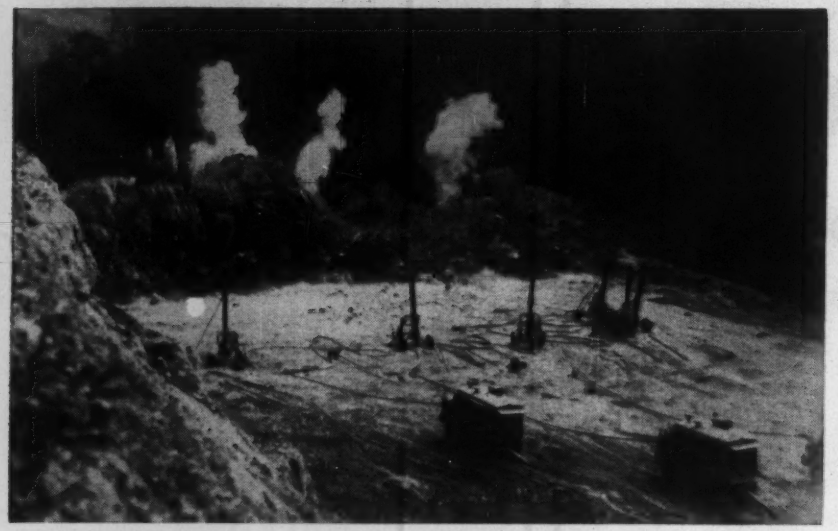
Many contractors have seismic records made of every blast, even before public sentiment has formed against them. A valuable public relations gesture, this action shows that the contractor is concerned about the welfare of his neighbors. Nevertheless, the reaction of juries to damage claims is unpredictable and certainly not worth chancing.

The least measurable factor in blasting public relations is "air blast" or "snap". The most startling factor of any blast, this "snap" calls the attention of the neighbors to whatever ground vibration may have occurred—"and to whatever may have needed repairing in the house."

The contractor who takes positive steps to reduce air blast can materially improve relations with his neighbors, as well as reduce complaints of damage. Adequate stemming, proper attention to the point of initiation, and careful selection of spacing and burden usually work together in muffling the noise of the blast.

• **Human reactions**—The human reac-

TROUBLE AHEAD?—Blasting for this highway will demand increasing skill as right-of-way approaches power line, railroad and town.



GOOD SHOT—Millisecond-delay technique on side hill cut holds muck in the cut area.

CAREFUL—Workers didn't hesitate to park just below right of way while blasting proceeded for New York Thruway. Some shots were made within 50 ft of residences.

. . . Blasting

tion to blasting is the most unpredictable phase of the blasting-public relations problem. Each individual will react differently to a specific blast. Weather conditions, health, emotional condition and physical activity at the time of the blast can all be expected to influence persons affected. There are no exact rules on how people will react to a blast.

However, blasts apparently cause fewer complaints when fired at a time that people are busy and not resting or inactive. Just before noon seems to be a good time to blast. People are busy at this hour and small children are usually awake.

Making the time of the shot known is considered good blasting practice. People seem to be less startled and less disturbed by a blast if they are expecting it.

• Solution 1

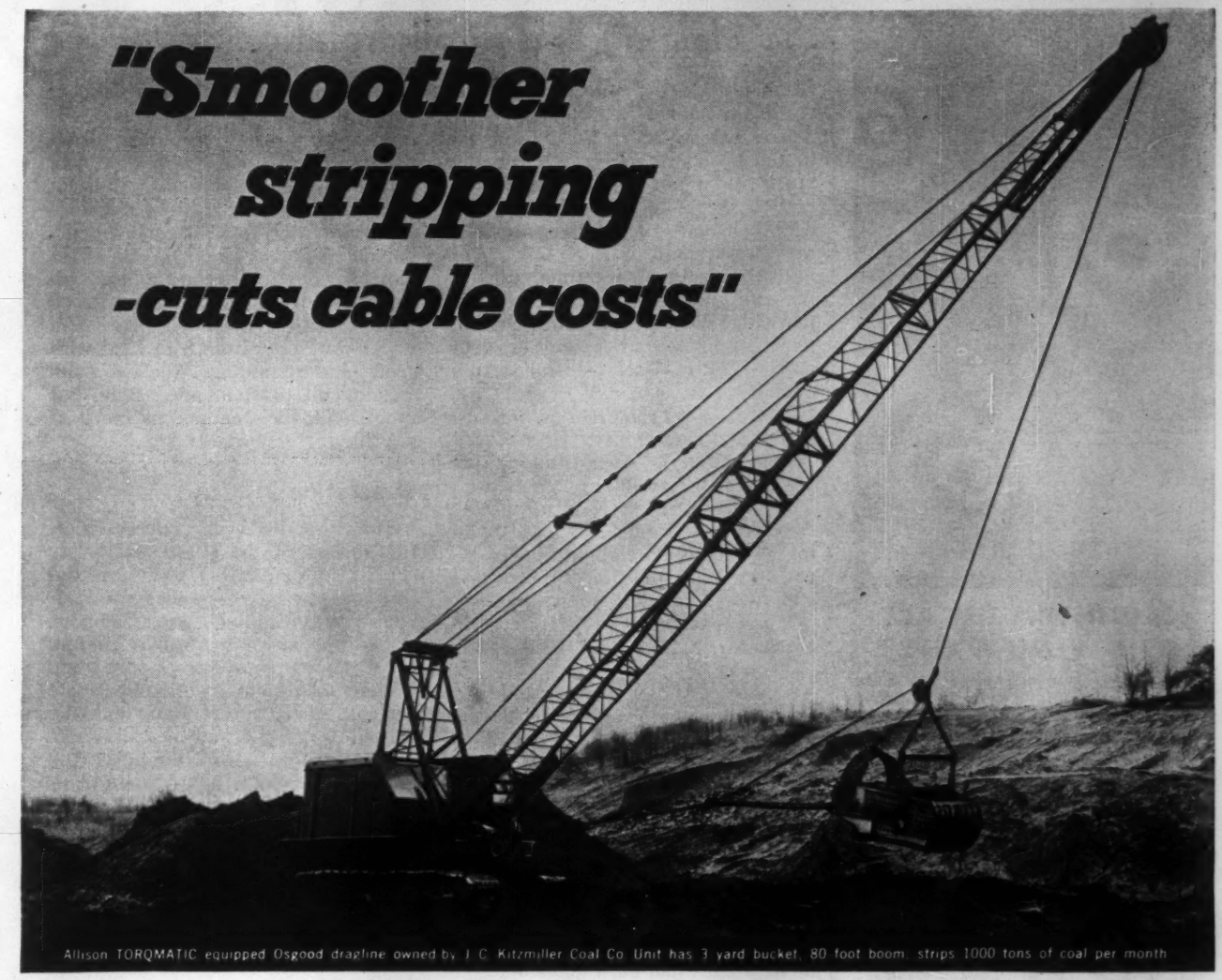
• **Millisecond delay**—It is generally recognized that vibration can be reduced—and breakage often improved—by the use of split-second delay blasting. This system of initiating various holes of a multiple hole shot at time intervals measured in milliseconds usually allows larger shots to be made than those which previously caused complaint when fired instantaneously.

Millisecond-delay initiation not only offers the possibility of increasing the amount of explosives without increasing vibration, shock, or noise, but it also offers the blaster a means of controlling the throw. Blasting one section of a bench first and presenting a new free face to each succeeding blast seems to direct the throw toward the holes previously detonated. This method has been successfully practiced on many highway jobs to enable contractors to excavate rock in extremely congested areas and often without the use of mats.

A typical set of millisecond-delay blasting caps comprises 17 electric caps having different built-in delay periods. The caps are numbered in the series, with the higher numbered caps having progressively longer delays. The No. 0 cap is instantaneous. The No. 16 cap has a delay of 550 milliseconds. The number of caps in this delay series allows almost infinite pattern variations, and it would seem that patterns could be adapted which would meet practically every possible situation.

The so-called progressive pattern was the first to be used when reduction of noise and shock was the primary objective. The results of this pattern were satisfactory but more recently

"Smoother stripping -cuts cable costs"



Allison TORQMATIC equipped Osgood dragline owned by J. C. Kitzmiller Coal Co. Unit has 3 yard bucket, 80 foot boom, strips 1000 tons of coal per month

AFTER 20,000 hours of low-cost strip-mining, veteran mine owner J. C. Kitzmiller reports "smoother stripping — reduced cable cost" due to shock-free power transmission in his Osgood dragline. The savings he's made with his Allison TORQMATIC Converter have made him decide to specify Allison TORQMATIC DRIVES in future equipment.

He's spending less for cable replacement in his Osgood dragline because the TORQMATIC Converter protects cable by absorbing sudden shock loads.

He's spending less for dragline repairs, too. The TORQMATIC Converter gives the operator time to cut off power—"throw out the drag"—when the bucket hits a snag, guards boom and drive line from harmful overloads.

And he's getting more work from his drag because with fewer repairs it stays on the job *earning* money—out of the shop *costing* money.

The TORQMATIC Converter matches engine power to load demand, helps prevent harmful engine lugging and stalling. It multiplies engine torque up to 3½ times—broadens the engine's effective horsepower range.

When load demand is equal to, or less than, engine torque the Allison TORQMATIC Converter acts as a fluid coupling to conserve fuel, boost engine life. This feature is standard equipment in every Allison Converter.

You can produce more for less with shock-free TORQMATIC power transmission in your 40- to 400-horsepower gasoline or Diesel equipment. Ask your manufacturer or dealer about TORQMATIC DRIVES in your equipment or write for more information to: Allison Division of General Motors Box 894E, Indianapolis 6, Indiana

ALLISON TORQMATIC CONVERTER

Simple Design — one-piece cast converter elements — minimum maintenance

Compact, easy to install in existing equipment

Designed for power applications in the 40 to 400 horsepower range

Longer Equipment Life — absorbs shock, eliminates harmful engine lugging, cuts maintenance costs

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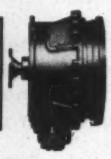

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Weighs only 12 ounces. Universal headband can be adjusted to any standard size in two minutes.

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. . . Blasting and public relations

alternate patterns and alternate-progressive patterns have become popular. These two patterns usually provide better breakage and more workable muck while not causing appreciably greater shock or noise. Because the delay elements of millisecond-delay caps are accurate only within several milliseconds of their rating, caps of the same nominal delay time do not normally detonate at precisely the same instant, although they do detonate within a closely controlled time period.

Hundreds of variations in millisecond-delay blasting patterns are available to the blaster to aid him in solving his blasting-public relations problem. Throw of the muck may be directed away from houses and buildings by shooting that portion of the cut away from the built up area first, and then detonating the other holes in such a manner as to direct the throw toward the holes fired earlier.

• **Example**—An excellent example of the use of split-second delay blasting caps to preserve public goodwill occurred on the Suffern section of the New York State Thruway last year. The contractor concerned set off as much as 1,500 lbs of explosives loaded in wagon-drill holes only 50 ft away from dwellings along a main street of the city. Despite the fact that mats were not used, the technique was so successful many citizens were not even aware a blast had been detonated.

In the construction of a sewage disposal line in Shippensburg, Pa., millisecond-delay caps allowed the contractor to excavate efficiently without endangering nearby houses. When the quantity of the rock in the holes was great, several decks of powder were used in the blast holes. Short delay caps were placed in the charges near the top of the hole and progressively longer delays in the lower decks. This job was completed safely despite the location of houses within 10 ft of the trench in many places.

• Solution II

• **Maximum Confinement** — Another means of exercising control over blast is the proper choice of the point of initiation. By detonating a charge where it is most confined—usually at the bottom of a hole—the possibility of the premature escape of gases up through the hole itself is minimized, and air blast and flying rock, which usually result when the collar of the hole is blown off, are reduced.

The use of adequate and suitable stemming will also reduce the amount of wild rock and muffle the noise of the blast. Coarse dry sand is generally considered the best stemming material for vertical holes, with rock dust a second choice. Properly utilized, stemming also serves to help reduce complaints due to blasting in heavily populated areas. From 15 to 20 or more ft of stemming are required in large diameter holes. Operators faced with a critical noise problem stem wagon-drill holes from 8 to 12 ft with good sand stemming. Shallow holes are difficult to stem adequately, but they should be stemmed as much as possible for best results.

• Solution III

• **Burden and Powder Factor**—Selection of burden and powder factor are certainly important in any successful shot and carefuly calculated will contribute to controlling the blast. Faults and fissures in the burden are avenues for the premature escape of gases. Where such points of weakness are present, charges can sometimes be decked to minimize air blast and wild rock. If there is any doubt of the amount of explosive to use when blasting in a new area, the operator who is concerned about public reaction to his blasting should probably approach from the low side, and gradually increase the amount of explosive used until he reaches the optimum, safe value.

• **Recording Instruments** — Photographic and seismic records of actual blasts may aid the contractor in several ways. The seismograph can help him determine the optimum amount of explosives and the correct detonation pattern to use in order to gain good results when working in a new area. Photographs and seismic records may also be useful as evidence in any court action resulting from blasting operations.

• **Traffic Control**—Of course, all the care in planning, loading and firing a shot will be for nothing if the operator fails to control traffic in the area of the blast before, during and immediately after the shot. It is the responsibility of the blaster to keep all persons out of the danger area, and to ascertain that no hazards remain in the area, as a result of the blast, before he allows traffic to proceed following the shot. This fact seems almost too obvious to mention. Nevertheless, haphazard traffic control in the blast area has cost some contractors money, time and the loss of public favor in the not too distant past.

P&H Model 655-B; 1½-yd. capacity. P&H builds the world's most complete line of Power Cranes and Shovels.

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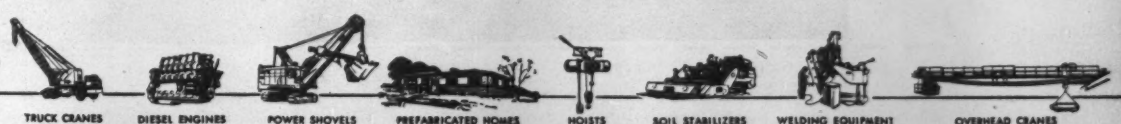

Read This—BEFORE YOU BUY A

New Cost-Reducing Features Keep FLEX-PLANE Detroit Special Best Finishing Machine Buy

If you get all the facts before you buy a finishing machine — you'll buy a Flex-Plane Detroit Special.

Here are a few of the reasons why. It's the most portable machine to ever take the forms. It requires no extra labor, cranes or large trucks to be moved from job to job. No "extra hands" needed and no crew waiting.

It's the most adjustable machine ever assembled. The **Two-in-One** working width means just that. Other equipment available today permits, at the most, only five foot range in adjustability. Flex-Plane's super **Two-in-One** adjustability more than doubles this range of working widths.

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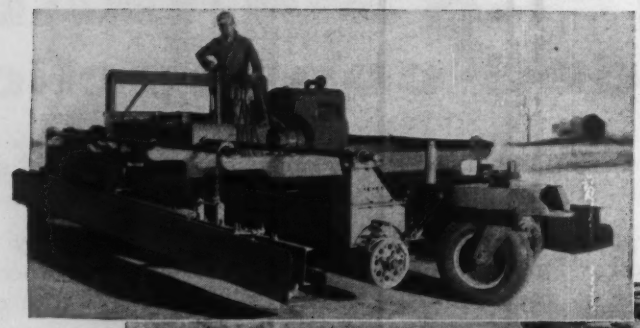
But get all the facts. Get the new 16-page documented booklet! Hear the story from other contractors! Watch it work! Compare it — and you'll join the ever increasing number of contractors who have found the answer to all finishing problems — **the amazing Flex-Plane Detroit Special.**



SELF-POWERED the Detroit Special will maneuver under its own power to position itself into the most advantageous hitching position.

POWER PLUS! The Detroit Special's heavy duty transmission enables the machine to work harsh, low slump concrete up to 35 feet in width with ease. Frequently does double duty as a spreader.

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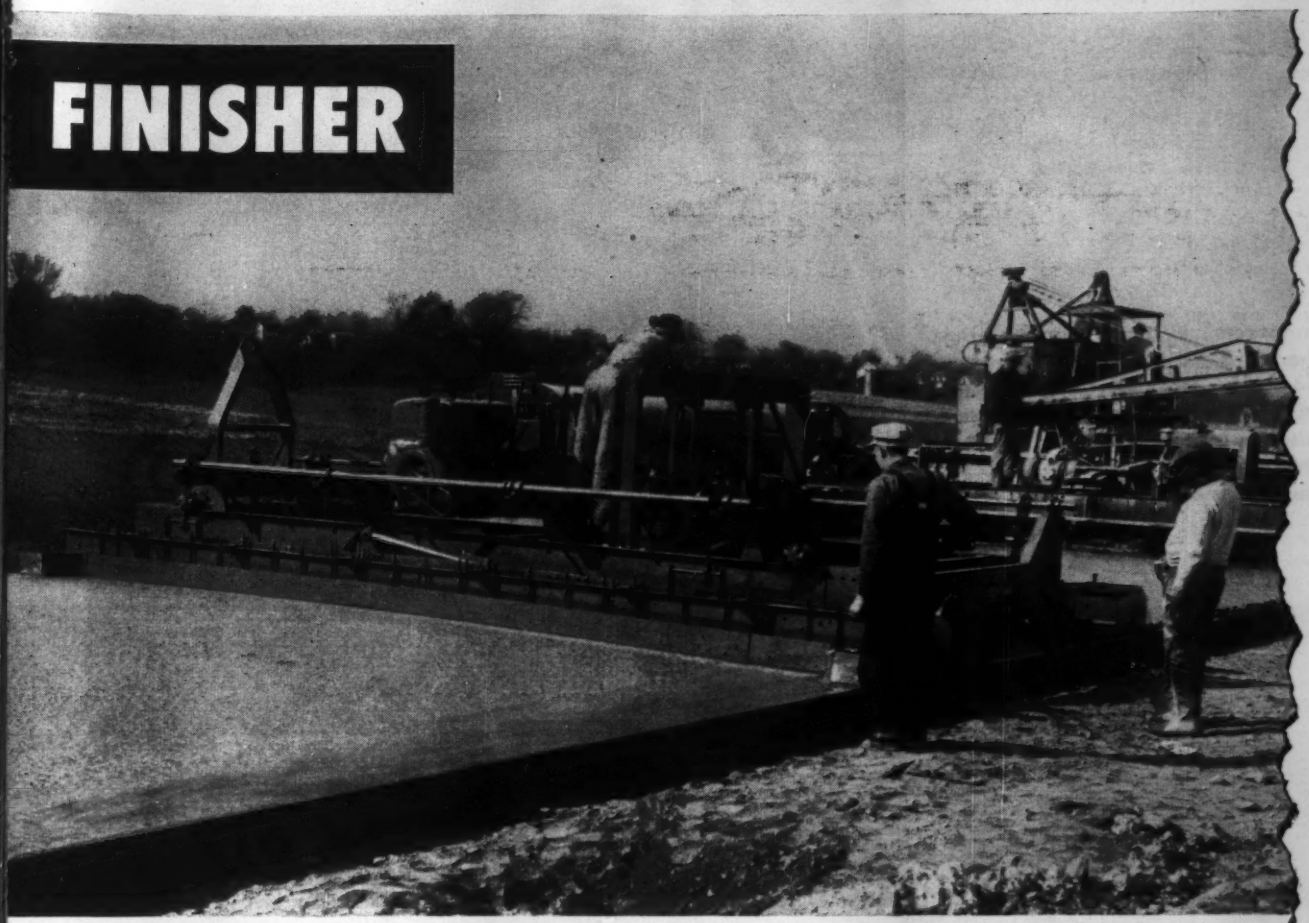
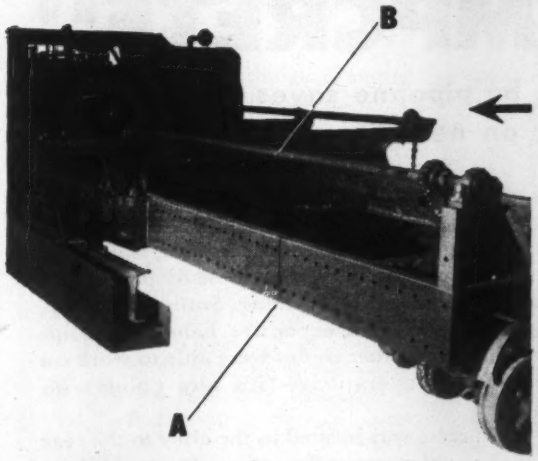
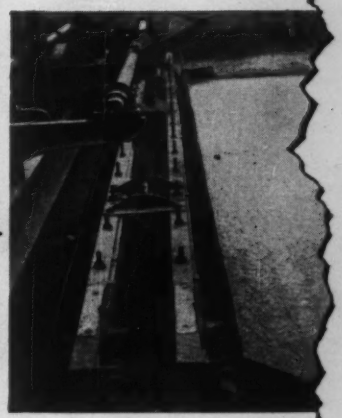




UNMATCHED ADJUSTABILITY is possible because of extra length frame and drive shaft. Even when machine is extended to maximum (Arrows A & B) there remains a tremendous overlap which gives the Detroit Special unmatched stability in the extended position. You don't sacrifice rigidity or finish quality to have extra width.

SUPER SCREEDS mounted on the standard Detroit Special have 12" bottoms — a total of 24" of screeding surface —widest in the field. For even finer screeding the extra-wide Flex-Plane Compound Screed (right) with a 20" bottom, is easily worked by the Detroit Special.



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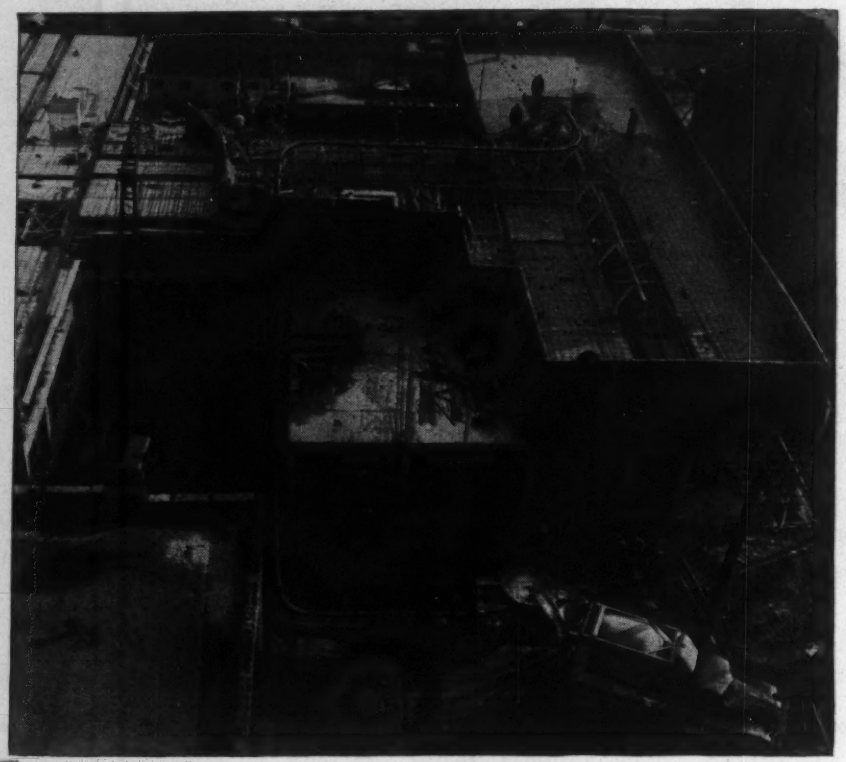
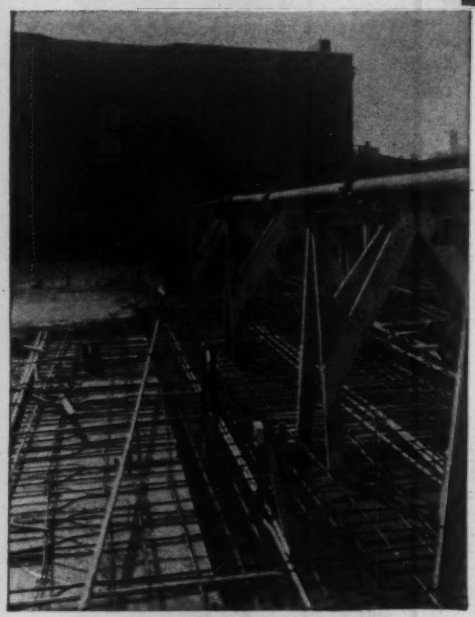


Pumpcrete® is located in the alley where it is accessible to truck mixers and away from traffic. Concrete is delivered to third floor of "H" shaped building by pipeline, 160 feet from alley. Note pipeline set in place for pour on other half of floor.



Small crew distributes and vibrates concrete in place. Note absence of cumbersome runways and buggies. Pumpcrete placed approximately 2200 yards of concrete for the building, averaging 15-18 yards per hour.

Reports: "nice going... with PUMPCRETE!"

concrete by pipeline saves time and money on new Chicago building

By eliminating conventional concrete-handling equipment—buggies, runways, lifts—contractor for this four-story "H" shaped structure on Chicago's North Side was able to place concrete at less cost, faster and better with Pumpcrete—the pump that delivers concrete by pipeline!

Construction supervisor Harold Arnold of Sumner Sollitt Company, Chicago, reported Pumpcrete eliminated expensive handling equipment. Iron workers, electricians and other trades were able to work on schedule, undisturbed by placing operations—"it's nice going with Pumpcrete."

The single Model 160 Pumpcrete was located in the alley to the rear of the building . . . out of the way of street traffic and easily accessible to truck mixers. This arrangement relieved traffic congestion and expedited over-all job progress.

Investigate the job-speeding, cost-cutting advantages of Pumpcrete on your next job. See your local Rex Distributor or write Chain Belt Company, 4633 West Greenfield Ave., Milwaukee 1, Wisconsin.

Revamped D8 Is Really a New Tractor

Basic size and operating principles are about all that's left after a complete designing and engineering overhaul

One of the old standby's of construction has had her face lifted and a complete redesign job done on her innards. The result: a more powerful and potentially more efficient D8.

Two models are available—a Series D with torque converter and a Series E with oil clutch. With a 3-stage torque converter, the Series D has speeds up to 7.4 mph through a constant mesh transmission that has three speeds forward and three in reverse. Drawbar pull with the converter is automatically adjusted to the load within the given speed ranges but with a maximum of over 50,000 lb.

The direct drive model, Series E, has five forward speeds with three in reverse. Speeds range from 1.5 to 5.2 with the standard transmission, but optional transmissions will offer speeds as low as 1.4 to as high as 7.2 mph. The standard transmission gives the D8 a rated drawbar pull of 39,150 lb, but this can be increased to as high as 45,020 lb under proper traction and weight conditions. Optional transmissions will give even higher drawbar pulls.

• **The newly designed engine** for the D8 has 191 hp at 1,200 rpm compared to 185 at the same speed in the previous model. Drawbar hp is now 155. Maximum torque is achieved at 800 rpm.

One of the features of this engine is a so-called "live shaft" drive, independent of the flywheel clutch, that provides constant power for rear-mounted cable controls and steering clutch booster pump drive.

A redesign of the fan and consequent reduction in fan horsepower were permitted by incorporating full-width water cores in the radiator. Along with water-cooled oil coolers, this permits higher load factors under adverse conditions without exceeding safe temperature limits.

Among the other features added to the engine are: a new fuel injection system with capsule-type fuel injection valves; flanged center main bearing to take crankshaft thrust; timing gear integral with the crankshaft; relocation of nearly all oil lines and valve push rods within the engine to simplify head removal and provide cleaner appearance; larger capacity oil manifold to reduce restriction of flow from filter base; and a new water pump and larger water passages in the block to handle greater capacities.

• **Location of the operator's seat** in relation to all the controls was one of the prime considerations in the design of the operating deck. One of the most important aspects of this is that the tractor can now be started from the seat. In line with this, the new D8 has a beefed-up gasoline starting engine. The seat has been raised 6 in. and is located on the left side of the deck with the hood streamlined for greater visibility.

• **The platform** has been smoothed up so that the entire deck surface is one plane except for a small foot well just in front of the single seat. The controls—including hydraulically boosted steering clutch levers, brake pedals, throttle control and gear shift levers—are positioned to give operating ease and comfort.

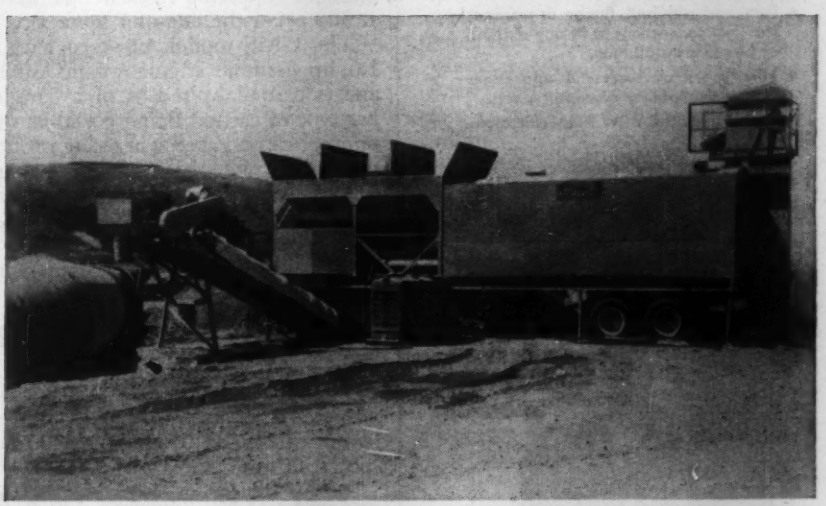
• **Other features** include the redesigning of the front idler yokes to include split arm construction. The track adjustment point has been changed to a location just behind the split-type idler arms, thereby providing better access.

The recoil spring has been increased in size and now provides an assembled load of approximately 38,000 lb.

The D8 Tractor now has seven-roller track frames which improve flotation, traction and stability. With this arrangement the number of track shoes on each side has been increased from 39 to 42, giving a length of 112 in. of track on the ground and with a 22-in. shoe, 4,917 sq in. of ground contact.

The fuel tank has been increased to a capacity of 118 gal, making it possible to work a full 12-hr shift on most jobs without stopping for refueling.

• **Easier maintenance and service** was stressed in this new model D8. The design of the steering clutches is such that each can be removed without disturbing the bevel gear assembly. Use of the barrel-type transmission makes it possible to remove it as an assembly without any of the other principal components, such as the flywheel clutch. Greasing periods for the operating controls have been extended by use of needle bearings and seals, and the D8 has full pressure bevel gear lubrication. A two-unit



Batch Plant Is Mobile, Self-Contained

A self-contained batch plant has been developed that will produce approximately 500 cu yd of mix in an 8-hr day. The cost of pouring is said to be reduced by one-third since the unit can be moved close to a job with the result that fewer truck mixers are required. The plant has its own cement storage, its own motor generator to provide power and can be supplied from a water tank as necessary. The plant was designed by the Fruehauf Trailer Co.'s Oakland, Calif. branch in connection with the Noble Co., 1860-62 7th St., Oakland, Calif.

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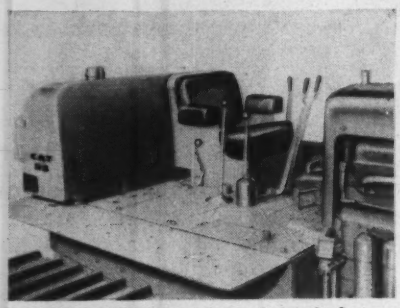


DECK DESIGN is clean, free of obstructions. Controls are conveniently located.

transmission lubricating pump is located outside the transmission for easy access.

• **The dimensions** of the tractor have also changed with the improvements. The D8 now has greater ground clearance—13 in. compared with 10½ in its predecessor. The overall length of the Series D is 17 ft 1½ in. and for the Series E, 16 ft 3 in. For both models the height is 7 ft 5⅛ in., width 8 ft 7¾ in. and height of drawbar above the ground 1 ft 6⅞ in. The operating weight of the Series D is 41,265 lb, for the Series E, 40,430 lb. CATERPILLAR TRACTOR CO., PEORIA, ILL.

Water Pump Supplies 300 psi Pressure at Remote Stations

The Epco pumper is a unit which includes power supply, pump, and filter for supplying fresh or salt water at 300 psi at the rate of 7 gpm.

The GMS model, powered with a 1.6 hp gasoline engine weighs 30 lb and is carried by means of a handle-bar type of carrier. Being portable, the pumper can be used where high water pressure is needed without making several separate installations or installing long, high pressure pipe lines from a central pumping station.

The uses for such a high pressure pumper include fire-fighting, testing, water supply systems, construction work, street cleaning, building maintenance, etc. When equipped with a special nozzle, the pumper can be used for the application of detergents, insecticides, germicides and other chemical compounds which are mixed with water and applied under high pressure in specified proportions of chemical-to-water.

In addition to the Model GMS, Models EMS, powered with an electric motor of 1.5 hp, and EMD, powered with a 3-hp motor direct-connected to dual pumps, are also available. The EMD supplies 14 gpm at 300 psi. EASTMAN PACIFIC CO., 2320 E. 8TH ST., LOS ANGELES 21.

Portable Chlorinator Useful For Emergency Services

A new portable chlorinator weighs only 40 lb, is little larger than a good-sized hat box, yet can serve to inject chlorine gas into a water or sewage plant at capacities from as low as 0.1 lb per day up to 1,000 lb per day.

The compactness of the unit is made possible through the use of the diaphragm regulator principle and by completely corrosion-resistant material. The Fiberglas-reinforced plastic cabinet is relatively rugged and offers a permanent gray finish unaffected by rust or chlorine corrosion. Uscolite, Teflon, Kel-F, Hastelloy, tantalum and silver used in the company's standard chlorinator to eliminate corrosion are used for the same purpose in the portable model.

The machine can be used as a stand-by unit for municipalities having many chlorinators, as an emergency unit for sterilization of water supplies during floods or other disasters, or as a handy temporary chlorinator for sterilization of new water mains by contractors. FISCHER & PORTER CO., HATBORO, PA.

Marion 2-yd Converts to 60-ton Crane

The new Marion 83-M is an all-purpose, 2-yd excavator with special features designed to make it a 60-ton special lifting crane.

A third drum is available on the 83-M crane for handling piles, snaking-in or snubbing loads, or it can be used as a high speed boom hoist. The machine has a high retractable gantry that is quickly raised or lowered under power. An independent boom hoist, optionally available, provides power up and power down—raising and lowering loads using power instead of a brake to control lowering of the boom.

For extra stability in crane service, the crawler width can be spread to 13 ft, 5 in. and extra-long 19-ft crawlers are available. The crane boom is the gooseneck type, allowing heavy and bulky loads to be handled close in to the machine and large loads to be lifted higher than with the use of an open throat boom.

All models of the 83-M feature a torque converter as standard equipment to reduce shock to machinery,

increase ease of operation, and give the operator as much operating speed as the load will permit, within the limits of the engine's horsepower.

One of the features of the 83-M is new self-cooling swing clutches. They are designed to virtually eliminate heat damage to the expanding rubber tube of the clutch by isolating the tube from the friction surfaces by means of aluminum friction shoe carriers. Heat from the friction surfaces is dissipated through large holes in the friction housing. Swing, propel and crowd retract clutches do not require adjustment. Hoist and crowd clutches have only one adjustment.

Air control eliminates all levers, bell cranks, toggles, pins, etc. Only 12 lb hand pressure by the operator on compensating-type air control valves releases full machine power.

Stressing simple design, the 83-M has only two horizontal shafts on the machinery deck and only 16 gears in the entire machine, aside from front end equipment. All units are said to be easily reached for maintenance and adjustment. Grease fittings are grouped and located for ease of lubricating remote points.

Other features include two propel brakes for ease of steering, a low center of gravity resulting from locating machinery well back of the center journal, specially-designed butt joints to ease changing boom lengths in the field, machine grooved drums and large diameter sheaves for longer life of wire rope, full vertical vision for the crane operator, copper tubing and reinforced rubber hose for air lines, manganese steel crawler pads and self-cleaning crawlers. Choice of diesel, gasoline, or electric power. MARION POWER SHOVEL CO., MARION, OHIO.

New Bituminous Mixer Is Stack-up, Tower-type Plant

A new Cedarapids batch-type bituminous mixing plant, the H-15, has a capacity range of 35 to 60 tons per hour, depending upon job specifications, and a pugmill mixer capacity of 15 cu ft net below center line of shafts.

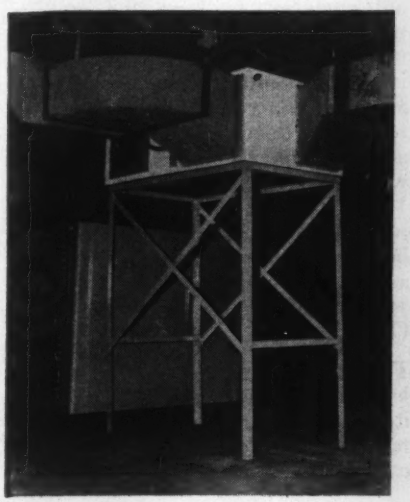
The H-15 is a stack-up, tower-type plant consisting of a hot elevator, screen and bin section, batcher and mixer section, bitumen pump, jacketed bitumen piping and valve, stairway, platform, controls and drives. The plant is said to be easy to erect since the sections are self-contained units.

After the base is set up, the batcher and mixer section with aggregate and bitumen scales and batchers connected is hoisted into position. The screen and bin section is then hoisted on top of the batcher-mixer section, and the hot elevator raised into position and piping connected.

The plant is offered as a portable or stationary unit with a choice of gasoline, diesel or electric drive. All gates and valves are operated manually thru mechanical linkage, except mixer discharge gate which has a manually controlled hydraulic cylinder. Optional equipment includes portable equipment, mineral filler attachment and electric timing and locking device. IOWA MFG. CO., CEDAR RAPIDS, IOWA.

Air Conditioner Fits Smaller Homes

A new self-contained, air-cooled air conditioner has been designed for installation in small, inexpensive homes —even those with existing steam or hot water heating systems. According to the manufacturer, the unit will deliver 16,500 Btu's at ASRE conditions and is able to operate efficient at high outside ambient temperatures.



The new 1½-ton unit can be installed on a roof and has outlets for round supply ducts that can be dropped through the ceiling. A damper in the plenum permits diversion of the air supply to day or night-time quarters or to all rooms at once. It may also be installed in connection with a furnace or placed in an attic or utility room and connected to an existing duct system. The cabinet is weatherproof for outside installation.

The unit measures 29 x 48 x 19½ in. and is shipped complete with evaporator blower and condensing blower.

In addition to the small conditioner, the company is offering two new designs in 2, 3 and 5-ton units—both water and air-cooled. Prices start at $500 to the consumer. SHANA MFG., INC., 188 W. RANDOLPH ST., CHICAGO, ILL.

HOW TO HANDLE
WET JOBS

ST REGIS KRAFT CORP
PUMP HOUSE

Eastport, Florida

Contractor: Merritt-Chapman & Scott

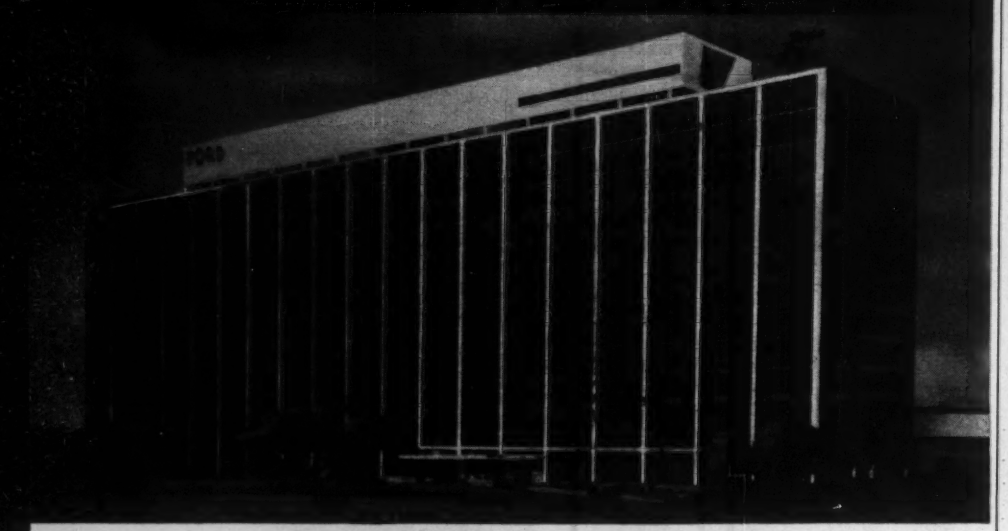
WITH OPEN PUMPING, BOTTOM ROSE 6 INCHES OVERNIGHT

THIS EXCAVATION, 25 ft from Broward River, was planned with steel cofferdam plus ordinary open pumping. But, on reaching subgrade at elevation –12, several very heavy boils were noted and bottom did, in fact, rise 6 inches that same night.

• Like others who have once tried the Griffin "quick-dry" method, this leading contractor called for it again. Soil was tricky—very fine sand with intermediate layer of river muck. Yet Griffin Wellpoint system took only 48 hrs to end all boiling action, give dry stable subgrade and write a good concluding sentence to the story: "Job completed on schedule."

GRIFFIN
WELLPOINT CORP.
881 East 141st Street, New York 54, N. Y.
Hammond, Ind. Houston, Tex. Jacksonville, Fla.
In Canada: Construction Equipment Co., Ltd.
Toronto Montreal Halifax

Q-FLOOR helps make Ford's new Dearborn office building as modern as its cars



Ford Motor Company.....Dearborn, Michigan
Skidmore, Owings and Merrill.....Architects
Bryant & Detwiler Company....General Contractors
Weiskopf & Pickworth.....Structural Engineers

Shown above is the Ford Motor Company's magnificent new administration building soon to occupy a 90-acre site in Dearborn, Michigan. When it is completed, it will provide nearly 950,000 square feet of floor space, approximately 500,000 square feet of which will be Q-Floor and on which 3,000 employees will work in the comfort of the latest in modern lighting and air conditioning.

Architects Skidmore, Owings and Merrill carefully designed the building to prevent obsolescence due to changing conditions in the years to come. Interior partitions will be movable to provide maximum flexibility in floor arrangements, and Robertson Q-Floor construction will be used to permit complete freedom of power and telephone outlet changes and additions at minimum cost. Only with this weight-saving, cellular steel structural floor can every exposed 6″ square area be the potential location of a convenience outlet.

Robertson Q-Floor construction also saves time and money. Its weight-saving factor means lower cost of foundation and structural steel. It immediately becomes a safe storage and working platform for the benefit of all trades. And because no combustible forms and falsework are required for the concrete fill, there has never been a construction fire on a Q-Floor job.

With all these remarkable features, it is easy to see why Q-Floor will help make and keep this fine new building as modern as the Ford of tomorrow.

Use the coupon on the opposite page to write for literature.

Robertson

Q-Floor

a product of **H. H. Robertson Company**

2420 Farmers Bank Building • Pittsburgh 22, Pennsylvania
In England—Robertson Thain Limited, Ellesmere Port, Cheshire
In Canada—Robertson-Irwin Limited, Hamilton, Ontario

World-Wide Building Service

PUBLICATIONS

Wire rope—"Wire Rope Recommendations and Catalog" is designed to provide a simplified ordering plan and reference for wire rope users. The catalog is divided into 16 sections, one for each of the major industries using wire rope. Each section, marked by index tabs for reference, gives detailed information on wire rope for specific requirements. The catalog also includes photographs showing applications. John A. Roebling's Sons Corp., 640 S. Broad St., Trenton, N. J.

Shielded arc welding—A new 16-page catalog covers in detail features of the Heliwelding process and the equipment used with it. The catalog describes and illustrates in actual welding operation, the manual holders either air or water-cooled and the automatic head that can be used with the process. Accessory equipment such as control panel, filler wire feeders, control stations, electric arc welding machines and many other items are also shown. Catalog ADC 709B. Air Reduction Sales Co., 60 E. 42nd St., New York 17, N. Y.

Field lubrication—"Alemite Portable Lubrication Equipment for Field Service" is the title of a booklet that should prove handy to contractors starting or expanding their field lubrication service. In this 16-pager are the various types of equipment available and the various fittings and hose assemblies required.—Alemite, Dept. W-114, 1850 Diversey Parkway, Chicago 14, Ill.

Plastic pipe and fittings—How to use and specify rigid plastic pipe and fittings is the subject of a new 12-page catalog. The catalog was created to aid engineers to learn the modern uses for plastic pipe to keep their methods in step with product processing and maintenance improvements. Featured is a corrosion chart classifying more than 275 corrosives rated according to the desirability of use with Alpha No. 101 and Alpha No. 103 piping. Recommended and non-recommended applications are shown, based on company tests, user reports and field experience. — Alpha Plastics Inc., 14 Northfield Rd., West Orange, N. J.

Testing equipment—A 104-page catalog describes and illustrates over 1,250 items of apparatus for engineering tests of soils, concrete, asphalt and construction materials. Included are

suggested laboratory layouts with equipment lists for soils, concrete and asphalt laboratories. The new catalog has an extensive section devoted to soil mechanics apparatus while the concrete section is devoted to a wide variety of apparatus for compression and flexure testing, slump, mixing, molding, flow, vibrating, air entrainment, volumetric measurements, curing and cement testing. — SOILTEST, INC., 4520 W. NORTH AVE., CHICAGO

Luminous ceilings – A 16-page brochure entitled "Acusti-Luminus Ceiling—The Ceiling That Works for You" includes many illustrations showing before and after pictures of installations of luminous ceilings. Another page shows various designs that are possible with the development and a series of pictures show the Underwriters test of the ceiling. Also included is a complete diagram of installation instructions of luminous ceilings.—LUMINOUS CEILINGS, INC., 2500 W. NORTH AVE., CHICAGO, 47.

Gratings and stair treads—Bulletin No. 1105 describes the line of interlocked and welded grating and stair treads. The 16-page booklet explains important construction features of two types and photographs and detail sketches illustrate the styles available. Typical installations and applications are also illustrated. A series of tables list the grating weights, standard sizes of safety stair treads, panel widths and the safe bearing loads for various bearing-bar spacings. Diagrams explain typical fastening devices and how they are applied to hold the grating panels secure. —DRAVO CORP., 1203 DRAVO BLDG., PITTSBURGH 22, PA.

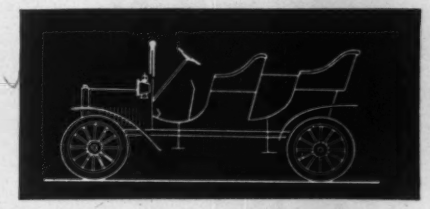
Electric check valves – Double cushioned electric check valves are described in an 8-page technical bulletin. Included are dimensions, cross-sectional views with parts list, suggested wiring diagrams and specifications. Bulletin W-10. — GOLDEN-ANDERSON VALVE SPECIALTY CO., 1208 RIDGE AVE., PITTSBURGH 33, PA.

Lightweight construction—A handbook of lightweight construction methods called "Systems of Lightweight Construction" outlines uses, installation procedures and specifications of vermiculite products. A two-page section of the 15-page booklet reviews basic aggregate requirements for lightweight construction and compares them with vermiculite aggregate properties. Also included is a summary of fire tests and ratings for various structures involving vermiculite and an outline of plaster fireproofing advantages. Booklet G-66. —ZONOLITE CO., 135 S. LASALLE ST., CHICAGO 3, ILL.

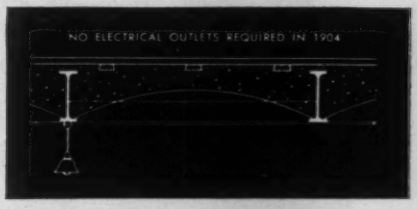
Floors, like Fords, have seen change over the years

For over a half century the automobile has been a chief topic of conversation, and the improvements made over the years have been critically analyzed by every prospective purchaser.

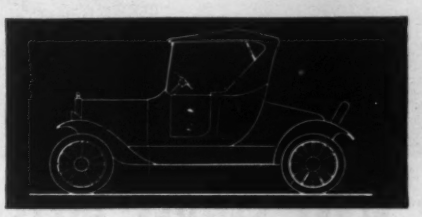
As every architect and engineer well knows, the floor construction of office buildings has undergone a similar period of development, moving from cumbersome tile arch construction to the modern electrically available cellular steel floor. The basic chronology of floors and Fords up through Q-Floor and the Y-Block engine is shown below.



1905 The 4-cylinder, 20-horsepower forerunner of the fabulous Model T was a sensation this year. It featured two speeds forward, gas headlamps, and a handy crank for starting.

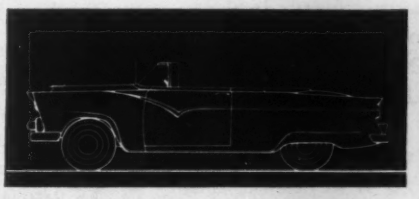


1905 This year, electricity was just finding its way into commercial buildings and was used only for lighting. Floor construction, at best, was a dead monolithic slab.

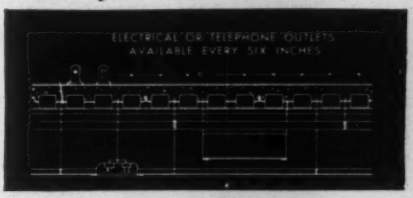


1925 Ford was now producing as many as 2,000,000 cars a year, all painted black. Wide tolerances in bearings, gears, and other interchangeable parts made every Model T owner his own repairman.

1925 The increasing use of electricity found many office buildings sadly lacking in convenience outlets for the new electrical equipment. Early attempts at "in-the-floor wiring" were adequate for that day.



1955 Today's car is designed for comfort and convenience. There is little left to do but steer. Mechanically, it is made to cope with every requirement of its owner.



1955 The finest of today's new office buildings are built with modern Q-Floor because it offers the greatest electrical and structural advantages of any floor system known.

Robertson

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Please send a free copy of your "Q-Floor" catalog.

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Address_____

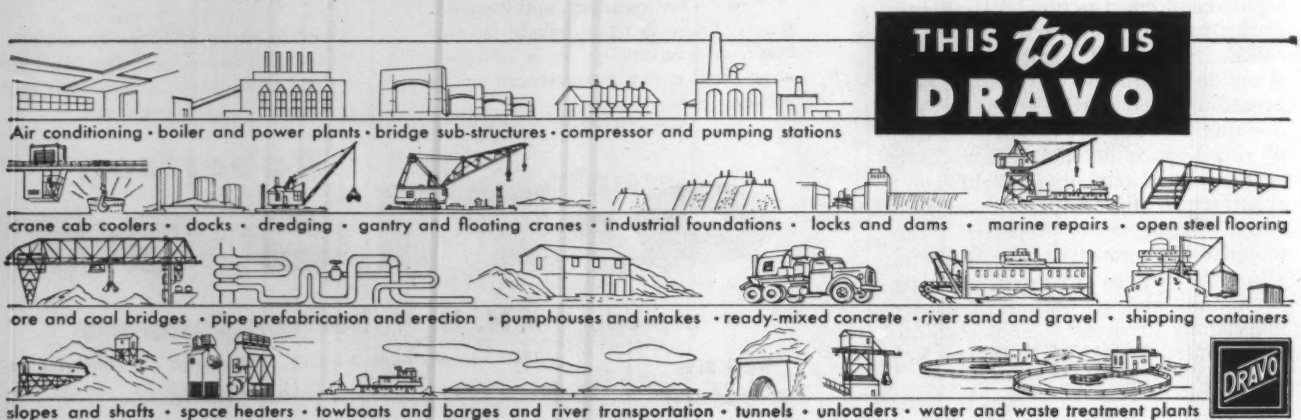
DRAVO'S RIVER FLEET SERVES PITTSBURGH INDUSTRIES

Coal transportation by water in the Pittsburgh district is an old story. As early as 1803 this basic fuel was floated from the rich Monongahela Valley coal deposits to down-stream destinations on crude flat boats.

Today's coal traffic is a vital economic factor in the industrial life of Pittsburgh. As one of its operating phases, the Keystone Division of Dravo Corporation is engaged in a towing service which hauls substantial tonnages of coal from up-stream mines. Deliveries are made on a regular schedule, to riverside docks of industrial plants that take advantage of dependable, low-cost river transportation to move bulk cargoes.

The Keystone Division is also known as the largest producer of sand, gravel and ready-mixed concrete in the Pittsburgh area. Keystone has played a large part in supplying this material to many of the projects in Pittsburgh's tremendous building program.

This is one of many ways in which Dravo has served business and industry in a variety of engineering fields for more than 60 years. Dravo considers customer satisfaction an essential factor in all its products and services. DRAVO CORPORATION, PITTSBURGH, PENNSYLVANIA.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INTERNATIONAL

Central Africa to Go Ahead With Kariba Gorge Project

The Central African Federation (Northern and Southern Rhodesia and Nyasaland) has decided to undertake construction of the Kariba Gorge hydro-electric project. The $240-million development would be larger than Boulder Dam.

The decision to proceed with the project before developing other hydro-electric potential in Kafue Gorge hinges on final appraisal by French hydro-electric expert André Coyne and favorable reaction by the International Bank. The Bank has been asked to help finance the project, which would cost $150 million in its initial stage.

The Kariba Gorge project has been under consideration for several years as a means of developing power for the copper belt. It would involve damming the Zambezi River at Kariba Gorge and would create a lake extending 150 mi up the river toward Victoria Falls. The lake created would cover about 1,400 sq mi of the Rift Valley.

The proposed dam is expected to be the largest in the world, storing nearly three times the water held by Boulder Dam. It would be a concrete wall 360 ft high and nearly ¼ mi wide a few miles northeast of the town of Sinamba. (Simamba is about 200 mi west and north of Salisbury, Southern Rhodesia.) The structure would block the torrents that pass over Victoria Falls, as well as the heavy flow of the Sanyati River, which enters the Zambezi just above Kariba Gorge.

The development will provide a minimum of 740,000 kw throughout the year, and a maximum of 1,050,000 kw in good years and floods.

Lebanon Picks 15 Firms For the Litani Hydro Scheme

The Lebanese Government has announced the choice of 15 out of the 54 companies which submitted bids for design of the Litani River hydro-electric projects (ENR January 27, 1955 p. 82). Five of the fourteen U. S. consulting engineering firms who submitted bids on the design work were chosen along with ten firms from Europe.

The U. S. firms are: Charles T. Main, Boston, Mass., Knappen-Tippetts-Abbett-McCarthy, New York, Parsons & Harza, Chicago, Sverdrup & Parcel, St. Louis, and Burns & Roe, New York.

Belgian Combine Bids Lowest For Venezuela Plant Design

A syndicate of Belgian manufacturers and engineers submitted the lowest bid for the preliminary studies of Venezuela's multi-million dollar steel plant in Bolivar State. A U. S. combine was next lowest bidder. Low bid, for preliminary studies, was $25,500, with the U. S. bid offer at $25,627. French, British, Norwegian, and Italian groups also bid on the work.

There were two U. S. groups bidding: one made up of Koppers Co. Inc., Westinghouse Electric Interna-

French to Build Huge Exhibition Hall

Construction of a huge, triangular building, to be known as the National Center of Industries and Techniques, will get under way next year in Puteaux just outside Paris, France. The building will consist of three cylindrical concrete arches intersecting at a central point so that in plan the periphery of the structure will be an equilaterial triangle.

The span of each arch, along each of the buildings three sides will be 656 ft. The arch membrane will be of concrete honeycomb construction, the average thickness between ribs being about 4 in. Glass walls will enclose the building under the huge arches on the three sides.

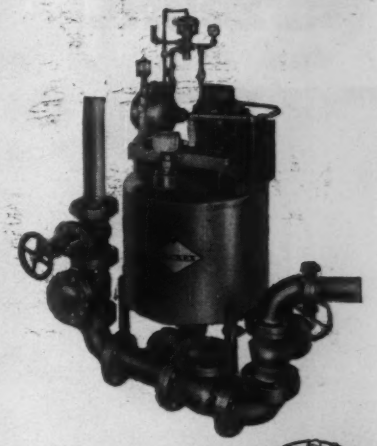
Half of the $8½ million needed for the work has been raised by French manufacturing organizations who are sponsoring the big center under the aegis of the CNPF, the French equivalent of the National Association of Manufacturers.

The building will provide a total of 750,000 sq ft of exposition space on the main floor, mezzanine, gallery and in the basement. Store and service areas in the building will take up 400,000 sq ft of space and trucks will be able to reach all floors of the building. A railway track will run through the ground floor linking the new structure to a downtown suburban station of the Paris Metro. Parking space for several thousand cars will be constructed.

First exhibition to be held in the center is already planned for September of 1957. Architects are the Messrs. Camelot, de Mailly and Zehrfuss, Paris.

Ideal for small buildings

PACKEX* Sewage Ejector by YEOMANS



Here's a genuine "economy package" combining guaranteed dependability and a price fully competitive with that of a good centrifugal pump: the PACKEX* Sewage Ejector. That's why it's ideal for small buildings,—school, store, apartment building, etc.

The vital features of PACKEX Ejectors are particularly attractive:

- **Economical to Install**—factory-assembled unit complete with air compressor and fittings, ready for electrical and piping connections. No excavation, no concrete work, no electrical work. Operates on standard house current.
- **Completely Sanitary**—no open sumps; hermetically sealed pot eliminates odors, gases; prevents sludge accumulation.
- **Clog-Proof**—passes any solids that can enter the pot without pre-screening or shredding.
- **Trouble-Free**—nothing to get out of order; no bearings to wear, no shafting to get out of line, no stuffing boxes to pack.
- **Weatherproof**—all electric elements moisture-proof in standard dry or damp underground installations.
- **Dependable**—designed on an operating principle proved by 80-odd years of astonishing performance—all the matchless reliability of Yeomans Pneumatic Ejectors, including the famous SHONE (R)

Call your local Yeomans representative listed in the Yellow Pages of your telephone book under "Pumps" or attach coupon to company letterhead and mail factory.

*A Yeomans Tradename ®Registered Trademark

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Send Leaflet 4420 containing detailed information on PACKEX* Sewage Ejectors.

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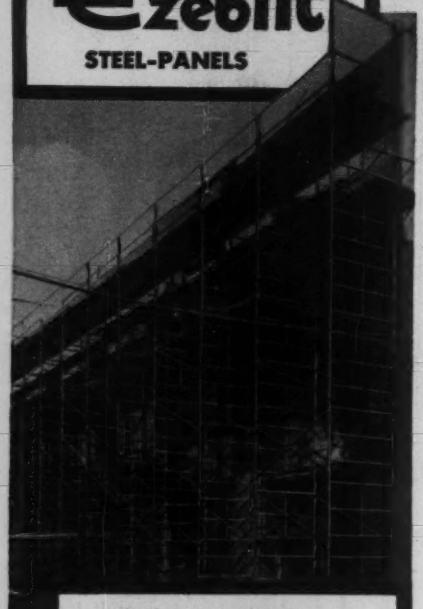
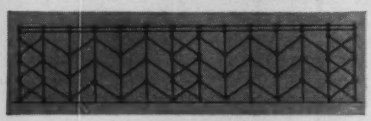


SINGLE BRACING does the trick...safely NEEDS FEWER PARTS

HERE'S HOW: You can safely 'single-brace' about 85% of the spans with Universal Ezebilt Scaffolding. Only the end spans and every seventh span requires cross or conventional "X" bracing.
RESULT: *Substantial savings in erection time and number of braces required.*



Up Faster no bolts to master
With the Original GRAVITY-LOCK
Completely Automatic — just slip zinc-plated brace ends into sleeve on the panel leg — rust-proofed trigger locks automatically, by gravity.

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UNIVERSAL MFG. CORP.
ZELIENOPLE 3, PA.

tional Co. and Mesta Machine Co., all of Pittsburgh, Pa.; the other composed of International General Electric Co., Arthur G. McKee & Co., Cleveland, Ohio, and the Continental Foundry & Machine Co., Chicago, Ill.

The plant will use only Venezuelan raw materials in the production of steel, the analysis of indigenous coal, limestone, and iron ore deposits having proved suitable. Ultimate capacity of the plant is estimated at 150,000 tons annually. Venezuela now imports some 600,000 tons of steel per year.

B. C. Plans Hydro Program To Prevent "Brown-Outs"

Faced with electrical "brown-outs" on Vancouver Island, the British Columbia Power Commission will build a $19-million hydro storage system to merge upper Campbell and Buttle Lakes into a 30-mi-long reservoir.

The program calls for construction of a $9-million dam below the outlet of upper Campbell Lake. This part of the project, which will raise the lake level to 79 ft, is expected to be completed by winter of 1956-57.

The second stage of construction, to start in 1958, at a cost of $10 million, will raise the dam another 30 ft and provide for installation of a 70,000-hp generating unit. This will back water into Buttle Lake 15 ft over its normal high level and make one large lake out of upper Campbell and Buttle.

The dam, 1,000-ft-thick at the base, will be rock and dirt-filled and have a concrete spillway. It will be 2,000 ft long in its initial stage and about 110 ft high when the second stage is completed.

The decision to merge the lakes terminates a drawn-out controversy over damming Buttle Lake. Under an original plan proposed a number of years ago the level of Buttle Lake would have been raised 12 ft more than it will be under the present scheme.

French Firms to Finish Two Peruvian Projects

Peru has awarded $25 mililon worth of contracts to French financial and industrial groups for completion of the Canyon del Pato hydro-electric project and the Chimbote steel mill project.

Financial contracts went to the Banque de Paris et des Pays-Bas. A contract for construction of the steel mill went to a French steel group, headed by Les Etablissements Delattre & Frouard Reunis, and the Consorcio de Ingenieros Contratistas Generales (Peruvian Consortium of General Contracting Engineers). A contract for construction of the hydro plant went to a French hydro-electric group headed by the Societe Generale d'Exploitations Industrielles, and the Consorcio de Ingenieros Contratistas Generales.

Both the steel mill and the hydro-electric plant are scheduled to begin operation by November, 1956. Initial output of the steel mill will be 50,000 tons per year, but its design will allow an increase of output up to 1,000,000 tons annually. Output of the hydro-electric plant will start at 50,000 kva and be increased to 150,000 kva. (For background, see ENR Aug. 19, 1954, p. 69.)

Jordan Development Schemes To Cost Some $400 Million

Plans are under way in Jordan for some $312-million worth of economic developments as well as for a $100-million hydro-electric and irrigation system to transform desert wastes into farm lands.

Michael Baker, Jr., Inc., Rochester, Pa., consulting engineering firm, has been authorized to complete the first phase of a master plan for developing water resources in the Yarmouk and Jordan River valleys. The initial phase of the project, which has been under way for a year, includes studies of rainfall, land classification, agricultural economics, and preliminary surveys for canal location, diversion dams and pumping stations.

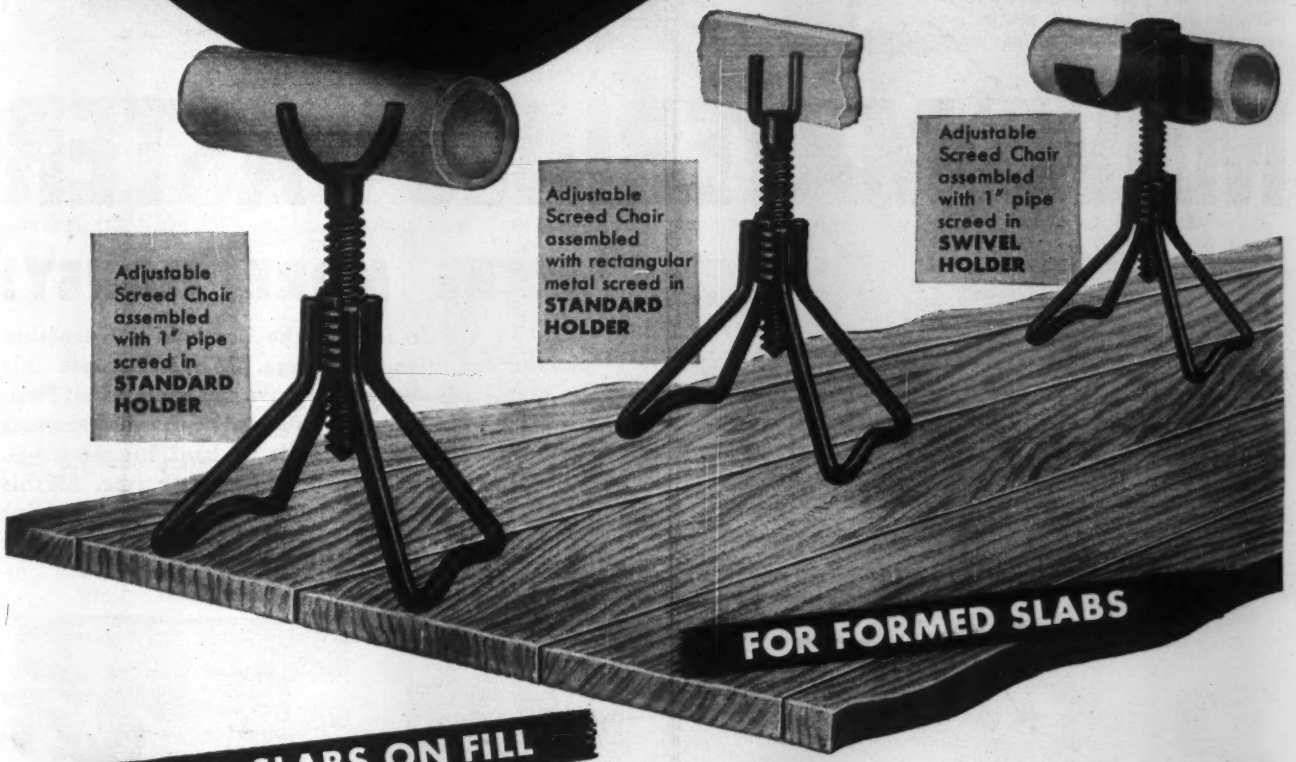
The economic programs, which will take 10 years to complete, are designed to make Jordan independent of foreign assistance.

International Briefs . . .

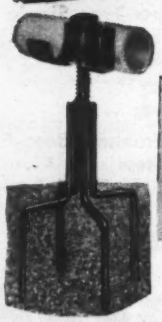
• **Development teamwork**—The new Libyan-American Reconstruction Commission—set up to develop Libya's economy—already has formed a committee to analyze the country's needs and work out a tentative program. The two governments will contribute at least $12 million during the coming fiscal year to finance development projects.

• **Money for modernization**—A $24-million World Bank loan will help finance a $100-million East African program to modernize and expand railways, harbors and road transportation in Kenya, Uganda and Tanganyika. The bank funds will help pay for imported goods and equipment.

SUPERIOR *Adjustable* SCREED CHAIRS


Adjustable Screed Chair assembled with 1" pipe screed in STANDARD HOLDER
Adjustable Screed Chair assembled with rectangular metal screed in STANDARD HOLDER
Adjustable Screed Chair assembled with 1" pipe screed in SWIVEL HOLDER
FOR FORMED SLABS

FOR SLABS ON FILL



ADJUSTABLE SCREED CHAIR FOR FILL assembled with 1" pipe screed in swivel holder

Modernize and speed up your screeding routine by using inexpensive Superior Adjustable Screed Chairs with reuseable Screed Holders.

Durably constructed and designed to provide maximum support and adjustability, Superior Screed Chairs permit easy and quick positioning and adjustment of pipe or bar screeds regardless of deck or slab variations. There is no interference from reinforcing steel in placing these chairs and they are readily nailed to the deck if desired.

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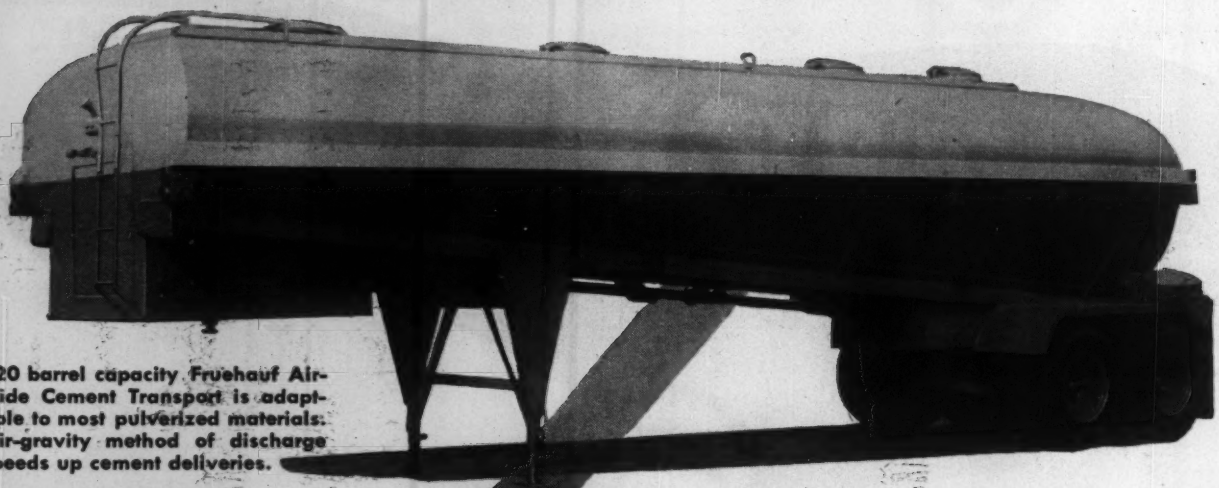

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MAKE MORE MONEY!

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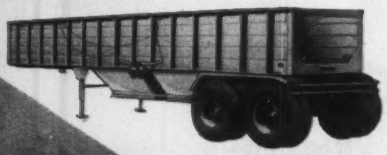
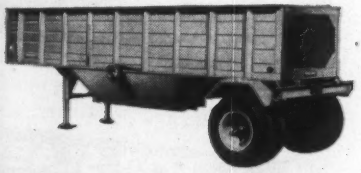


Fruehauf 12-30 cubic-yard Hopper-Type Tandem Dump Trailers



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WILLIAM B. F. DREW, hard working New York City BTEA president, is . . .

GREETED by chairman, Peter Eller . . .

In Labor Relations—

President of the biggest alliance of local building employers finds most problems can be solved if tackled with . . .

AND LISTENS attentively to union officials, William T. Dodd and Howard McSpedon.

More Understanding and Less Shouting

Over the years, William B. F. Drew, who has just begun his second term as president of New York City's venerable Building Trades Employers' Association, has acquired a sincere respect for the men who make up the construction labor force.

Higher and broader education plus a growing financial stake in the industry have given labor a generally more responsible and realistic attitude toward management's problems, observes the BTEA president, whose organization boasts a membership of more than a thousand.

"Today's labor force," says Drew, "is a comparatively well educated one. High school education, at least, is nearly an average. What may be even more important is that the wives of craftsmen are also well educated. Education means that the men are far better able to understand the facts of life in an American business community, and are not nearly so easily led astray by irresponsible members who can fool them with purported facts that they have no means of checking.

"The rapid growth of pension and welfare funds, by the same token, has given the average worker a personal financial stake in his own industry and has provoked a keen interest on his part in the economics of his business and in finance in general. And if you add to this general interest the universal habit of purchasing homes, household appliances, cars and other items on the installment plan, you can easily find the reason for the quite genuine quest for security and stability on the labor side of the construction fence.

"Certainly in the last few years this has been evidenced at meetings between labor and management. Labor has come to the joint meetings at least as well—and often much better—informed and prepared than management on questions of economics. I think it is a healthy trend."

• **The quiet man**—Soft-spoken, college-trained William Benedict Francis

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"DIXIE" IS A REGISTERED TRADE MARK OF THE DIXIE CUP COMPANY

Drew does not fit the popular concept of a hard driving construction man.

Of Irish stock, Drew is a native New Yorker and an engineering graduate of Stevens Institute of Technology. He's now a top man in one of the nation's biggest general piping contracting firms—J. L. Murphy, Inc., of New York.

Skillful and successful in the field of competitive bidding, Drew's also a shrewd bargainer, having exercised his talents for many years as a representative of the plumbing industry employers as well as of his own firm. And his work with the BTEA has brought him into contact at top levels with leaders of both labor and management in the construction industry.

Silver-haired and distinguished looking, Drew has also done his share of critical work in the field of sports. He played for three years on varsity teams at Stevens in football, baseball and basketball, and was twice captain of the baseball team. He joined his present firm a year after leaving school and is now the company's secretary and treasurer.

• **How to do it**—Out of his six years of service on the executive board of the Association of Contracting Plumbers of the City of New York, and his membership on the arbitration, pension and vacation boards of the Plumbing Industry's Joint Board, Drew has gotten his biggest satisfaction from the rapidly narrowing gap in viewpoint between management and labor. He points out that the pension and vacation plans which the New York plumbing trade now enjoys, were the first of their kind in the industry. He is a close personal friend of AFL president and one-time plumber George Meany.

"No labor problem is insoluble," says Drew.

"All it takes is honest effort by both sides to understand. And I think we get closer to that all the time."

He sums up his philosophy on labor relations in a nutshell, about this way:

"The further away we get from the idea that the only way for labor and management to talk to each other is in shouts, the better off we are. . . . In the past several years, labor has made it its business to learn all it can about management and its problems. Management is guilty in many cases of not exerting a reciprocal effort to learn all it can about labor and its problems. The closer we get to that kind of understanding, the better off we are. . . . A reasoned and reasonable approach to all of our problems is possible and from it we can work out an answer."

Apprenticeship Training Called Industry's Job

"The primary responsibility for training rests with industry—management and labor." That's the conclusion of W. C. Christensen, deputy director for operations in the U. S. Department of Labor's Bureau of Apprenticeship.

Concerned about the growing demand for skilled labor, Christensen takes the position that adequate training cannot be brought about by legislation. The government, he says, can promote training and provide the facts and figures, but it cannot "lead the way." At the present time, promotion in the fields of industrial training and apprenticeship is described as the "first objective" of the Bureau of Apprenticeship's program.

Federal stimulus to on-the-job training began with the passage of the National Apprenticeship Act in 1937. It later received a big boost from benefits made available by the government to servicemen returning to civilian life. But the apprenticeship system, says Christensen, has always been based on "voluntary cooperation between industry and government."

In redirecting its promotional and technical assistance activities, the Bureau of Apprenticeship points to its concentration on intensified training of its own staff, development and dissemination of information on up-to-date training practices, simplification of apprenticeship procedures, and encouragement to industry to accept greater responsibility for training. The federal government can help, says the Labor Department, "but in the last analysis it is up to industry to do the job."

NLRB Raps Steamfitters In Squabble With Riggers

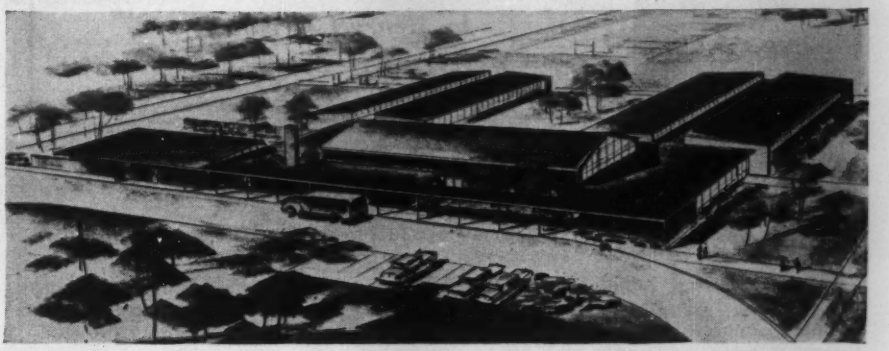
An AFL steamfitters local in Philadelphia has been accused of unfair labor practices in its conduct of a bitter three-year-old battle with the riggers union. It has been ordered by an NLRB trial examiner to halt all attempts to compel contractors to assign work to them instead of to riggers.

The dispute centered around the steamfitters' "traditional" claim that they, rather than the riggers, had jurisdiction over handling, moving and setting up all equipment they use. Several work stoppages and mounting costs have resulted from the steamfitters' physical interference with work assigned to riggers at various sites.

(*Continued on page 70*)

Because V-LOK Reduces Erection Costs

A school designed with a V-LOK Steel Frame can be erected and under roof in a very few days—using a minimum of skilled labor and equipment to expense against the job. Interlocking structural members require no bolting, riveting or welding — except anchor bolts.



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A school under roof in a few days permits craftsmen to move in and start finishing operations for much earlier occupancy. This speed combined with actual economies—per sq. ft.—puts a School Board definitely over on your side for future expansions.

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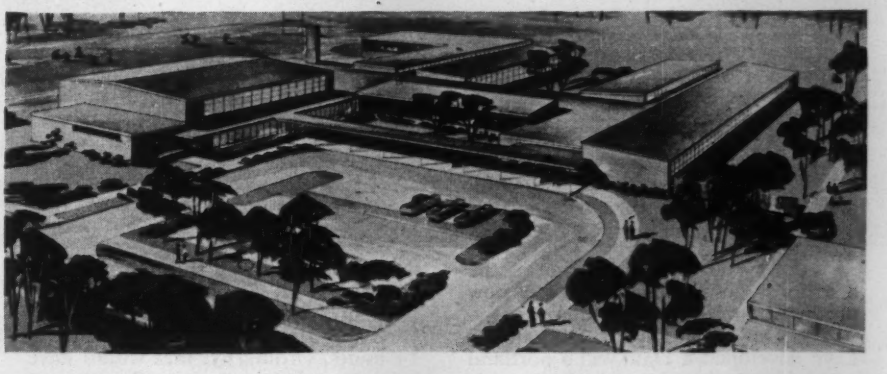
With V-LOK—you're the Architect, unhampered in the most modern layouts you want to design. You have adequate spans and loading capacity plus a practical joining of accessory materials and component structural units. Contact us for design standards.



Illustrated here are three of the many V-LOK Schools designed by Walter Anicka of Ann Arbor, Michigan. At the top is the Saline Elementary School, Commermercial Const. Corp., General Contractor.

Second is the Willow Run High School, Birchard & Roberts, Dearborn, Gen. Contractor. Third is the South Lyon High School, A. N. Hickson, Inc., General Contractor, Detroit, Michigan.

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STRUCTURALS

Darex Diary

by Henry L. Kennedy

Member, American Concrete Institute
Manager, Construction Products
Dewey & Almy Chemical Company

* Why air entrainment increases unit weight of mass concrete gravity dams
* A new product to keep cellars dry

A QUESTION that I have often been asked is "why use air entrainment in mass concrete gravity dams where weight is a basic requirement?"

Before air entrainment, a four-sack mix for mass concrete was necessary in order to get proper placement, proper consolidation and to minimize segregation and honeycombing. Today, with air entrainment, it is possible to use greater proportions of aggregate per unit of volume, maintaining the same or better placeability and without sacrificing unit weight. Actually, as shown in the following table, the unit weight of air entrained concrete in mass structures is generally greater than the usual mass concrete poured without air.

CONCRETE MIXES

AIR ENTRAINED			PLAIN		
C/F		2.5 sks/cu. yd.	C/F		4.0 sks/cu. yd.
W/C		7.5 gals/sk	W/C		6.0 gals/sk
Air		3.0% (actual 2.5%)	Air		1.5% (accidental)
Sp. Gr. F.A.		2.70	Sp. Gr. F.A.		2.70
Sp. Gr. C.A.		2.78	Sp. Gr. C.A.		2.78
% F.A./T.A.		19%	% F.A./T.A.		30%
Batch Wts.		**Abs. Vol.**	**Batch Wts.**		**Abs. Vol.**
Cement	235 lbs.	1.19	Cement	376 lbs.	1.91
Water	156 lbs.	2.50	Water	200 lbs.	3.21
F.A.	726 lbs.	4.30	F.A.	1090 lbs.	6.45
C.A.	3190 lbs.	18.30	C.A.	2605 lbs.	15.05
		0.68			0.41
	4307 lbs.	26.97		4271 lbs.	27.03
Unit Wt.		159.5 lbs/ft.^{3}	Unit Wt.		158.0 lbs/ft.^{3}

Note the decrease in cement content and the greater ratio of coarse to fine aggregate when air entrainment is used. Also note the substantial reduction in water.

However, in average mixes, about 4.5 to 5.5 sacks per yard, air entrainment brings about reduced unit weight; and from a dead-load and transportation cost point of view, this may be considered advantageous. In other words, with little or no effect on the strength factor, the entrainment of air in average mixes reduces unit weight; thus reduces dead-load which has to be carried in the structure and reduces weight which has to be conveyed to the job in a ready mix truck.

* * *

A SHORT TIME AGO I saw one of the most convincing tests of a new product that I have ever seen.

The Dewey and Almy laboratories have developed a DARAWELD portland cement paste that showed considerable promise as a water repellent for the interior of below grade surfaces. I challenged them to test it on the walls of my auxiliary cellar. These "walls" were originally constructed to serve only as a foundation. They are not of concrete, but rather rubble and lime mortar and cement mortar and whatever else was suitable for a foundation. They became "walls" some 18 years ago when we found it necessary to dig an auxiliary cellar for extra storage space . . . and they have leaked all through those 18 years.

Eight days after the DARAWELD had been applied, we had a 1.67 in. rain in 14 hours. Ordinarily, that would have been enough to put about 2 inches of water over the entire auxiliary basement floor. I viewed the basement after the rains had stopped, and to my amazement the wall was completely dry, and I mean bone dry. I estimate that I had at least a 2-foot head tending to force that water through the inferior lime mortar.

We shall keep you posted on our progress with DARAWELD . . . and will be glad to send you more complete information about it.

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DIVISION OF W. R. GRACE & Co., **Cambridge 40, Mass.**

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LABOR

A typical incident, cited by the examiner, occurred at the Bristol plant of Rohm & Haas. As a result of obstructive tactics of the steamfitters, the contractor arranged to let the riggers do the work—but had to pay an equal number of steamfitters who stood by until the job was finished three days later.

Unlawful Rules of Union Bring Contractor Trouble

A Texas painting contractor, who shaped his employment practices around a union's unlawful working rules, was found guilty of an unfair labor practice in discriminating against an employe suspended by the union.

The charge was filed by a painter who had been fined $100 by his union for violation of a working rule requiring time-and-one-half for overtime. After appealing the union's decision and while the appeal was pending, the painter was employed by the contractor and became the union steward. The union grew dissatisfied, suspended him for non-payment of the fine, and designated another painter to replace him on the job. The contractor acceded to the unions action and told the painter to get straightened out with the union and then come back.

In the course of his decision, the NLRB trial examiner found a number of the union by-laws and working rules unlawful and their application illegal. He held both the contractor and the union jointly and severally liable to the painter for back pay.

Labor Briefs . . .

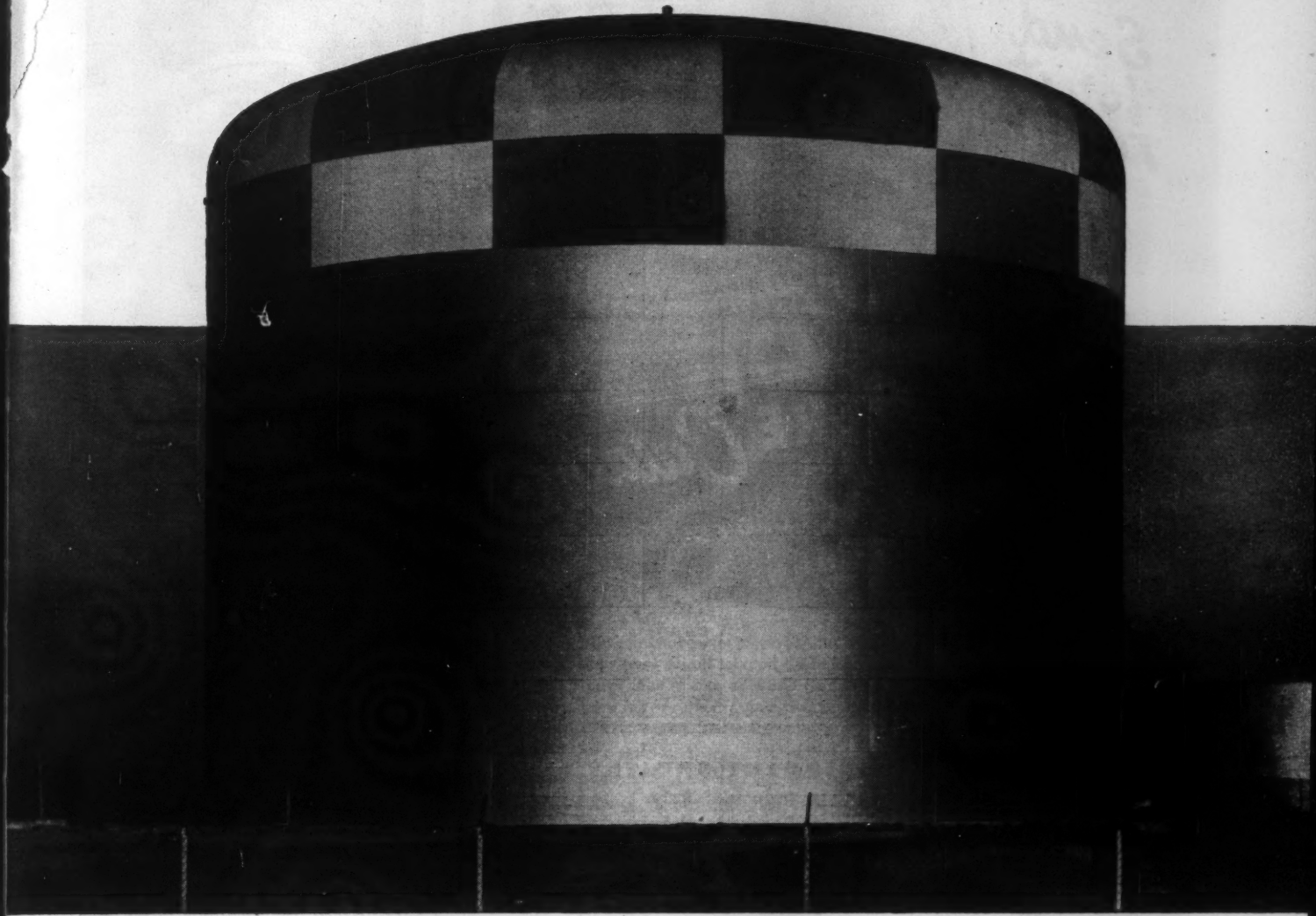
• **Bricklayers**—A new one-year contract, covering 200 bricklayers in the Canton, Ohio, area has been negotiated with the Construction Council of Stark County, Inc. It grants an hourly wage increase of 2½ cents, raising the rate to $3.30. Present contract expires March 31.

• **A moot question?**—The NLRB has again held that cessation of an unfair labor practice does not render a case moot. Carpenters on a hospital construction job in St. Louis had struck in an attempt to force the contractor to cease using the products of a company which, under a subcontract, was installing blinds with its own employes who were members of the upholsterer's union. The fact that the carpenters returned to work under the promise of the union secretary not to repeat the strike was no reason to dismiss the unfair labor practice charge, said the NLRB.

America's Largest Standpipe

(CAPACITY 7,268,000 GALLONS)

for South Pittsburgh Water Company



by PITTSBURGH •DES MOINES

This huge water storage unit evidences typical Pittsburgh-Des Moines fine workmanship in shop fabrication and field erection. Measuring 116 feet in diameter, with a water depth of 95 feet and total capacity of 7,268,000 gallons, the South Pittsburgh Water Company giant is the largest standpipe-type storage tank built in America to date. • Let us quote on your water storage needs.

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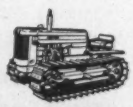
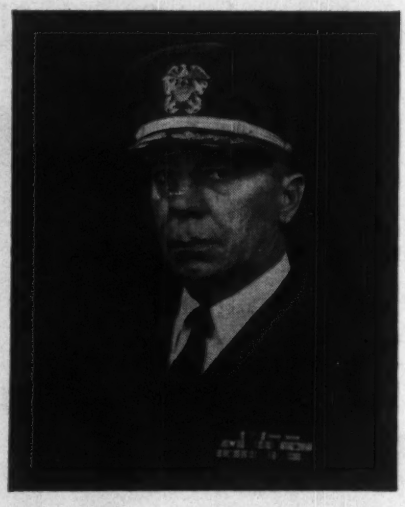


MEN AND JOBS



U. S. Naval Officer Assigned Engineering Command Abroad

Capt. Elmer B. Greey, USN, has been assigned to the Joint Construction Agency, United States European Command, as chief of the engineering division. He succeeds Capt. Daniel B. Ventres, USNR, who has returned to the United States for retirement.

Prior to his assignment to JCA, which manages the military construction program of all three United States services in France, Greey was deputy director, Bureau of Yards and Docks, Atlantic division.

A civil engineer and 1920 honor student of Princeton, he joined Matthews Construction Co., Princeton, N. J., in 1921 and became one of the firm's vice presidents. Greey was sent to Wake Island in 1941 to supervise naval construction and was captured by the Japanese, who held him as a prisoner for four years.

Three Firms Establish New Engineering Group

A new organization, known as IREX—International Resources Engineering and Exploration Group—has been formed by three consulting engineering firms to provide an integrated service for the study of all phases of natural resources.

Firms coordinating their related facilities through IREX are: Brown & Blauvelt, New York consulting engineers; Jack Amman Photogrammetric Engineers, of San Antonio, Texas; and Geophoto Services, consulting geologists, of Denver, Colo.

Represented in the group are more than 500 engineers and specialists in aerial photography, photogrammetry

and mapping, hydrology, forestry and soils evaluation, geological exploration, agricultural studies, engineering design and economic analysis of resources problems.

IREX offices are located in Washington, D. C.; Denver, Colo., San Antonio, Texas, New York, N. Y., and Calgary, Canada.

J. L. Brown Named Director Of Concrete Pipe Company

J. L. Brown, vice president and general sales manager of American Vitrified Products Company, has been elected to the company's board of directors.

He joined the firm in 1935 and was manager of its Columbus, Ohio, office before moving to the Cleveland headquarters in 1947.

Organizations of which Brown is a member include Ohio Contractors Assn., Ohio Concrete Pipe Assn., New York Better Roads Assn., National Clay Pipe Manufacturers Assn., Clay Products Assn., and American Concrete Pipe Assn.

Photogrammetry Society Installs New Officers

New officers elected by the American Society of Photogrammetry at its 21st annual meeting in Washington, D. C., include W. Sidney Park, president, and William C. Cude, first vice president.

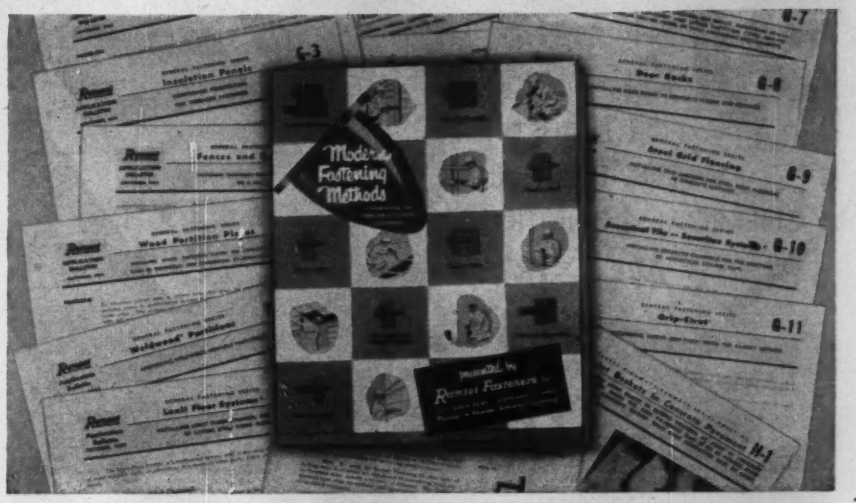
Park began his career in aviation in 1919 and is now president of Park Aerial Surveys, Louisville, Ky. In 1920, he founded the Bowman Park Aero Company, later taken over by Park Aerial.

Cude has been associated with the Corps of Engineers for many years and is chief of the Typographic Engineering Department at the Engineering Research & Development Laboratories, Ft. Belvoir, Va. His experience includes flood control and allied work in the south for the Corps of Engineers and mapping and surveying activities with the Soil Conservation Service, U. S. Department of Agriculture.

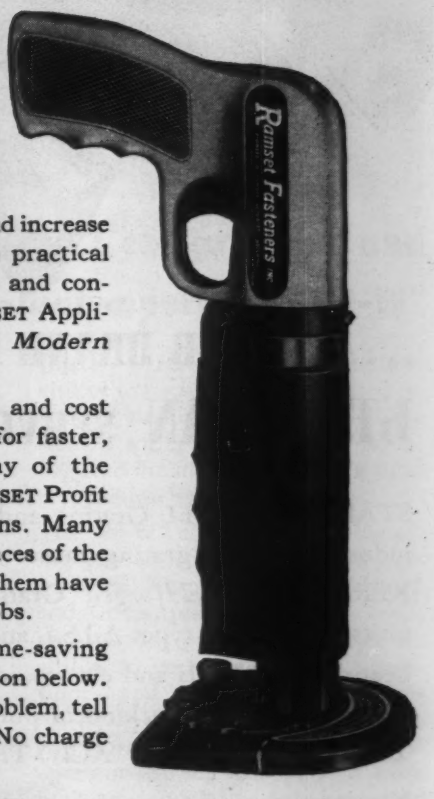
Men and Jobs Briefs . . .

• **Associations**—South Dakota state highway engineer, **H. C. Rempfer**, is elected president of the Mississippi Valley Conference of State Highway Departments . . . **Edwin B. Cobb**, a partner in Metcalf & Eddy, becomes president of the Boston Society of Civil Engineers . . . **George W. Walker** heads up the Construction Industry Employers Assn. of Buffalo.

• **Careers**—Public Health Service sani-



INCREASE PROFIT MARGINS with PROFIT ENGINEERING



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Detailed drawings, photographs, and cost analyses give specific instructions for faster, easier, lower cost fastening. Many of the applications were developed by RAMSET Profit Engineers to meet specific conditions. Many others come from successful experiences of the thousands of RAMSET users. All of them have been tested and proved on actual jobs.

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MEN AND JOBS

tary engineer director, **Ellis S. Tisdale,** will become director of the Interstate Commission on the Potomac River Basin in July . . . **Fred R. Stair,** president of Farragut Lumber Co., Knoxville, is appointed acting state director of the FHA in Tennessee . . . **John T. Ashford, Jr.,** is named public works superintendent at Clinton, N. C.

• **Business**—The Shawinigan Engineering Co., Ltd., Montreal, names its chief engineer, **Guy R. Rinfret,** a vice president and director . . . **Robert S. Tolles** is promoted to chief estimator by Cunningham-Limp Co., Detroit general contractors . . . **William C. Tims,** sanitary engineer, is named superintendent of Carol City Utilities, Inc., Carol City, Fla.

Felix S. Hales is elected president of Nickel Plate Road, Cleveland—a civil engineer, he joined the railroad in 1916 and served in various engineering capacities before becoming an executive officer.

• **Retirements**—Stanley T. Barker retires as assistant director of the Bureau of Environmental Sanitation of the New York State Health Department and will become associated in an engineering capacity with U. S. air base construction in Spain . . . **Cherry L. Emerson,** Georgia Institute of Technology vice president, retires on June 30—he was dean of engineering before taking charge of the Institute's multi-million dollar construction program.

• **Honors**—**R. Norman Reeves** is named a trustee of Beaver College, Jenkintown, Pa.—he's a member of E. Allen Reeves, Inc., Abington, Pa., builders and contractors . . . **J. L. Stair** receives the 1955 Gold Medal of the Illuminating Engineering Society for his achievements in the field of illuminating engineering.

Gate-Lift Idea Pays Off

Hubert P. Stockwell, an engineer employed by the Corps of Engineers on Florida flood control projects, has received a $600 award from the Corps for his design of a jeep-lift gate-operating mechanism which is expected to save the taxpayers $280,000 over the next ten years. Based on the old principle of sawing wood with power from the jacked-up hind wheel of a Model-T Ford, Stockwell's mechanism operates the gates with power from the rear wheel of a jeep. The Corps, which presented the award at its Jacksonville office, will use 340 of the devices in the Florida project.

OBITUARIES

Harry V. Dougherty, 74, former civil engineer with the Philadelphia Transportation Co., died Feb. 27 in Philadelphia. At one time a Philadelphia Democratic leader, he served the city as Registrar of Wills and as a member of the Registration Committee.

Patrick Quilty, 82, former commissioner of water supply, gas and electricity for New York City, died in New York City March 12. He received his civil engineering degree in 1911 from Cooper Union, entered the city's employ in 1903, and joined the water supply department as a leveler in 1905. He rose to assistant engineer, Manhattan borough engineer and, in 1940, was named chief engineer after having served as acting chief engineer for 3½ years.

John J. Nary, 69, who retired in 1950 as deputy chief engineer for New York City's Triborough Bridge and Tunnel Authority, died in Pearl River, N. Y. March 15. During his 40 years city service, he was one of the chief engineers in construction of the Manhattan end of both the Brooklyn-Battery Tunnel and the Queens Midtown Tunnel. He was graduated from Cooper Union in 1909, and in 1910 joined the Board of Water Supply, where he helped build the Catskill aqueduct system. Later he served as engineer for the Board of Estimate, Board of Transportation, Public Works Administration and Tunnel Authority.

David C. Warner, 82, executive-secretary of Ohio's State Water Conservation Board, died March 14, in Columbus. He is regarded as being one of the men responsible for setting up the state's water conservancy districts, its Muskingum watershed and many of its other flood control and conservation works.

Dwight P. Robinson, 86, retired construction engineer and former president of Stone & Webster Engineering Corp., Boston, died in Pocasset, Mass., March 17. He had served as president of Dwight P. Robinson Construction Co. in New York, and also headed United Engineers & Constructors of New York for several years. He was a graduate of Harvard University.

Frank M. Kenney, 53, Colorado building contractor, died March 13. He was responsible for construction of many highway structures in Wyoming and New Mexico as well as in Colorado.

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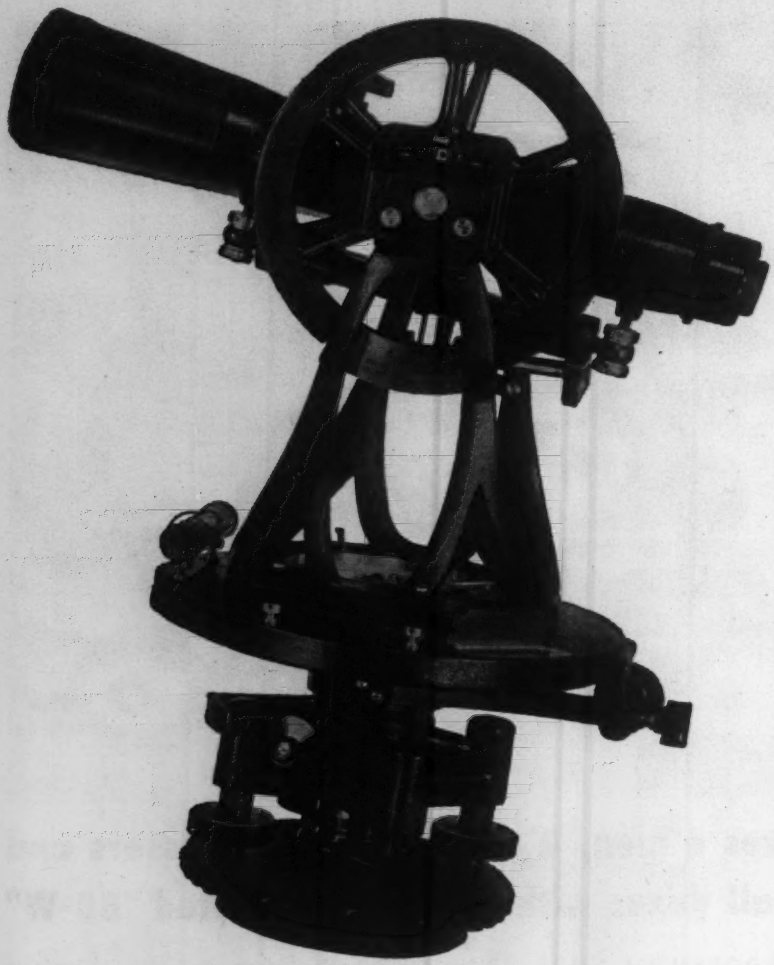

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BOOKS

Construction Business

ENGINEERING CONTRACTS AND SPECIFICATIONS—Third Edition. By Robert W. Abbett. 429 pp. John Wiley and Sons, 440 Fourth Ave., New York 16, N. Y. $6.00.

Perhaps the most popular book on the subject since World War II, Mr. Abbett's "Engineering Contracts and Specifications" again has been revised sufficiently to warrant comment.

The first edition was written during the war and was designed to meet the requirements of the large volume of construction of the time—much of it by the government. The second edition placed greater emphasis on private work, and it was revamped with an eye to greater utility for classroom work. Now, the legal considerations in contract preparation and administration have been expanded from one to five chapters, in order to make the book more convenient for reference and textbook used.

Cost-plus-fixed-fee contract data and contracts for professional services are discussed in the light of developments since World War II.

Field Data Book

DATA BOOK FOR CIVIL ENGINEERS: VOL. III, FIELD PRACTICE—Second Edition. By Elwyn E. Seelye. 394 pp. John Wiley and Sons, 440 Fourth Ave., New York 16, N. Y. $7.50.

Soil tests and soil mechanics data for resident engineers are the most important and useful additions to this manual, which first was published in 1947. Its purpose is to furnish the field engineer or inspector with sufficient data to enable him to perform his duties without constant reference to other expert advice. The book is third in a series, the first two (Second Editions, 1951) being "Design" and "Specifications and Costs."

Notable features of the book are color plates showing certain construction species of wood, and the solution colors yielded by the standard ASTM method of test for organic impurities in sands for concrete.

The heavy-equipment illustrations are brought up to date. Concrete inspection data are amplified, the new material includes a table for form-stripping times, as well as new tables of concrete mixes and characteristics. Under masonry and brickwork, a subject with which civil engineers frequently are not sufficiently familiar, Mr. Seelye has added data on common

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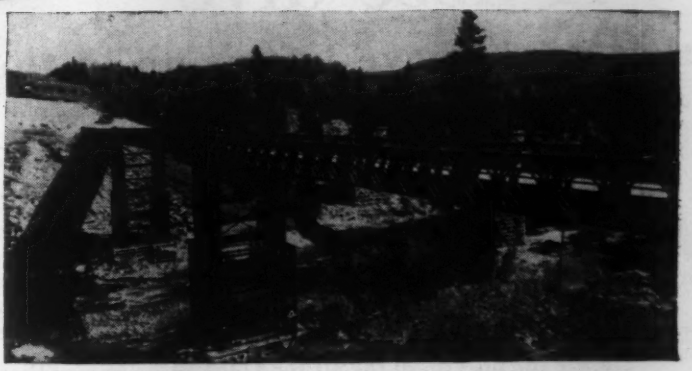

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types of cracking in walls, and predeflection of new lintel in old walls.

He devotes 58 pages to soil mechanics, calling the section "a brief course." Data includes, in addition to a short discussion of soil behavior: soil tests; use and treatment of PRA groups; constants for pavement design; boring inspection check list; and consolidation by sand drains.

Miscellaneous Notes

• **Surveyors** will find answer to more of their questions in "2222 Review Questions for Surveyors", the latest edition of the book compiled by Russell C. Brinker, head of the Civil Engineering Department at Virginia Polytechnic Institute. Copies may be obtained from the author, Box 153, Blacksburg, Va., for $3.00.

• **Geologic glossary**—Twenty-six hundred of the more common geologic terms used by geologists and engineers are defined in the "Glossary of Selected Geologic Terms" by Wm. Lee Stokes and D. J. Varnes, soon to be published as Volume 16 of the Proceedings of the Colorado Scientific Society. Orders at prepublication price of $2.50 clothbound and $2.00 paperbound, accepted until May 15. Orders and checks to Treasurer, Colorado Scientific Society, Box 688, Denver, Col.

• **Unionization of engineers** is the subject of Bibliography No. 10 compiled by the Engineering Societies Library, 33 West 39th St., New York 18, N. Y. This listing covers literature on that subject published in pamphlets and magazine articles from 1937 to 1954. Copies from the library for $2.00.

• **A description** of an industrial atomic laboratory for the Atomic Energy Commission's Portsmouth gaseous diffusion plant is given in Report No. K-1148, Nov. 29, 1954, by R. W. Ulm, W. J. Hamer, L. H. Rogers and G. P. Rutledge, Union Carbide and Carbon Corp., K-25 Plant, Oak Ridge, Tenn. The Portsmouth Technical Services building is a two-story, 113,800-sq ft, basementless, reinforced concrete structure, with waterproofed concrete block exterior walls and concrete floors. Laboratory rooms are based on a 12-ft module. For flexibility, extensive use is made of movable partitions in assigning spaces. Rooms are air conditioned, with pressure in corridors kept higher than in rooms to prevent circulation of contaminated air. Radioactive material is wasted through three "hot" sinks to a holding tank outside the building.

New Engineering Books

VIBRATION PROBLEMS IN ENGINEERING—Third Edition. By S. Timoshenko, 468 pp. D. Van Nostrand Company, 250 Fourth Ave., New York, N. Y. $8.75

THE DESIGN OF CYLINDRICAL SHELL ROOFS—By J. E. Gibson and D. W. Cooper, 186 pp. D. Van Nostrand Company, 250 Fourth Avenue, New York, N. Y. $8.50

PROCEEDINGS OF FIFTY-EIGHTH ANNUAL CONVENTION OF THE AMERICAN RAILWAY BRIDGE & BUILDING ASSOCIATION, 1953—Published by American Railway Bridge & Building Association, 431 So. Dearborn St., Chicago 5, Ill.

ENGINEERING DYNAMICS—By C. B. Biezeno and R. Grammel: Vol. I, THEORY OF ELASTICITY ($11.00); Vol. III, STEAM TURBINES ($8.50); Vol. IV, INTERNAL COMBUSTION ENGINES ($11.00). Published by Blackie & Sons, London, and obtainable through the British Book Center, 122 East 55th St., New York, at prices indicated. These books were first published in Germany by Julius Springer, Berlin, and were translated by M. L. Meyer. Vol. II, ELASTIC PROBLEMS OF SINGLE MACHINE ELEMENTS, is to be published in the autumn.

ANALYSIS OF DEFORMATION, Vol. II—By Keith Swainger, 365 pp. Published by Chapman & Hall, London, and obtainable through British Book Center, 122 E. 55th St., N. Y. $14.50.

CALIFORNIA CIVIL ENGINEERING REGISTRATION EXAMINATIONS—Compiled and published by August E. Waegemann, 2833 Webster St., San Francisco 23, Calif. $7.00 plus tax.

TOWARD BETTER SCHOOL DESIGN—By William W. Caudill, 271 pp. F. W. Dodge Corp., 119 West 40th St., New York 13, N. Y. $12.75

Reports and Pamphlets

NEW BULLETINS of the Engineering Equipment Station of the University of Illinois, 207 Administration Bldg., Urbana, Illinois, are as follows: The Distribution of Concentrated Loads by Laminated Timber Slabs ($1.00); Effect of Body Feed on the Filtration of Water Through Diatomite ($.80); Inelastic Behavior of Ductile Members under Dead Loading ($1.00); Outdoor-Air Supply and Ventilation of Furnace Closet Used with a Warm-Air Heating System ($.70).

RECENT PUBLICATIONS of the Highway Research Board, 2101 Constitution Ave., Washington 25, D. C., are: Bulletin 92, Highway-User Taxation ($.75); Bulletin 93, Soil Density and Stability ($.90); Bulletin 94, Deleterious Constituents of Indiana Gravels ($.30); Bibliography 17, Effect of Water on Bitumen-Aggregate Mixtures ($.60); Special Report 20, State Highway Organization Charts ($.75).

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J. A. MAHONEY, M. O. WETZEL, L. M. WINISKI, M. E. SCIORRA, F. S. DEMBEK, Reports.
J. H. WEBBER, M. R. ROESSLER, E. R. HUBER, Statistics.

NEW ENGLAND

BIDS ASKED—HEAVY CONSTRUCTION

Mass., Boston—BA 4/7—Commonwealth of Mass., Metropolitan Dist. Comn., Constr. Div., 20 Somerset St., Contr. 202, Sect. 3 relief sewer to Watertown St., South Charles River, Boston, Newton and Watertown, $900,000. Plans deposit $25 refundable, Charles A. Maguire & Assoc., 14 Court St., Boston, engrs. CD 1/15/52.

† **Mass., Bedford**—ENGINE BUILD-UP SHOP, etc.—BA 4/8—U. S. Eng., 857 Commonwealth Ave., Boston, engine build-up shop, control tower, squadron supply bldg., hydrogen bldg., inflammable storage bldg., Hanscom Air Force Base, ENG-19-016-55-96, $400,000-$500,000. Plans deposit $20, refundable. Edwin T. Steffian, 11 Beacon St., Boston, archt. Anderson-Nichols & Co., 150 Causeway St., Boston, engrs. CD 3/3.

MASSACHUSETTS—BA 4/14—At office Secretary-Treasurer Massachusetts Turnpike Auth., 80 Boylston St., Boston, Zone 16,

Sturbridge—Contr. 51-073 hy. and bridge constr. Plans deposit $50. Fay, Spofford & Thorndike, 11 Beacon St., Boston, section engrs. Howard, Needles, Tammen & Bergendoff, 80 Boylston St., Boston, Zone 16, general consult. engrs. adv. ENR 3/31. CD 8/11.

BIDS ASKED—BUILDINGS

▲ **Conn., Stamford**—HOSPITAL—BA 4/19—St. Joseph's Hospital, 128 Strawberry Hill Ave., 85-bed hospital addn. and auditorium. $1,000,000. Francis L. S. Mayers, 126 Bedford St., archt. CD 3/30/54.

Conn., Newington—SCHOOL—BA 4/11—Town Bd. Educ. & Town Bldg., Comn., Newington. Elizabeth Green School addn., $325,000. Plans deposit $50. Carl J. Malmfeldt & Assocs., 36 Pearl St., Hartford, archts. Extended date. CD 3/7.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲† **J. R. Cianchette**, 120 Main St., Pittsfield, Me. LB $2,269,931, est. $2,500,000-$3,000,000. airfield pavements exten., Loring Air Force Base, ENG-19-016-55-63, LIMESTONE, ME. U. S. Eng., 857 Commonwealth Ave., Boston, Mass. Bids Mar. 18. CD 3/7.

† **Davison Constr. Co.**, 1306A Elm St., Manchester, N. H. CA $545,200, est. $700,000-$800,000. armament and electronics shops, Portsmouth Air Force Base, ENG-19-016-55-87, PORTSMOUTH, N. H. U. S. Eng., 857 Commonwealth Ave., Boston, Mass. Bids Mar. 11. CD 3/16, under LB.

▲ **MASSACHUSETTS**—Massachusetts Turnpike Auth., 80 Boylston St., Boston,

Elmhurst Constr. Co. Inc., 53-09 97 Place, Corona, N. Y. CA $2,571,415, est. $2,600,000. Contr. 51-020 hy. and bridge constr., Becket and Otis. CD 2/23, under LB.

▲ **MASSACHUSETTS**—Massachusetts Turnpike Auth., 80 Boylston St., Boston,

S. J. Groves & Son Co., Inc., 19 Rector St., New York, N. Y. CA $4,809,452, est. $5,000,000. Contr. 51-030 hy. and bridge constr., Russell and Blanford. CD 3/4, under LB.

▲ **MASSACHUSETTS**—Massachusetts Turnpike Auth., 80 Boylston St., Boston,

Gilbane Building Co., Inc., 90 Calverley St., Providence R. I. CA $3,758,003, est. $3,800,000. Contr. 51-081 hy. and bridge constr., Grafton and Millbury. CD 2/28, under LB.

▲ **MASSACHUSETTS**—Massachusetts Turnpike Auth., 80 Boylston St., Boston,

The Lane Constr. Co., P. O. Drawer 911, Meriden, Conn. LB $6,209,290, est. $6,200,000. Contr. 51-110 hy. and bridge constr., Westfield and West Springfield. Bids Mar. 16. CD 2/15.

▲ **MASSACHUSETTS**—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston,

Bayer & Mingolla Constr. Co. Inc., 550 Park Ave., Worcester, Mass. CA $1,388,770, est. $2,000,000. hy. and bridges South Main St., Orange and Athol. CD 3/11, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

C. J. Lyons, 740 Century Way, North Scituate, Mass. Owner Builds. $450,000. 18 RESIDENCES, COHASSET, MASS. Lester N. Lechter, 738 Boylston St., Boston, Mass., designer.

Compo Shoe Machinery Corp., 150 Causeway St., Boston, Mass. Separate Contracts. $500,000. shoe machinery PLANT, Roberts Rd., WALTHAM, MASS. Aldo A. Minotti, 681 Main St., Waltham, Mass., archt.

▲ **Dimeo Constr. Co.**, 75 Westminster St., Providence, R. I. CA $2,562,639, Rogers HIGH SCHOOL, off Ruggles Ave., NEWPORT, R. I. City High School Comn., c/o Supt. Schools City Hall, Newport, R. I. Bids Feb. 2, awarded Mar. 16. Correction-contractor) CD 2/14, under CA.

▲ **M. S. Kelliher Co.**, 294 Washington St., Boston, Mass. CA, $3,680,187, HIGH SCHOOL, Memorial Field, off East Center St., MANCHESTER, CONN. Town Bd. Educ., Town Hall, Manchester, Conn. Bids Mar. 8. CD 3/11, under LB.

Associated Constr. Co., 1010 Wethersfield Ave., Hartford Conn, CA $887,000, Elementary SCHOOL, South Stanley Homes Development, Alexander Rd. Area NEW BRITAIN, CONN. City, Supt. Schools, New Britain, Conn. Bids Mar. 3. CD 3/9, under LB.

▲ **James J. Canna**, 225 Short Beach Rd., East Haven, Conn., Owner Builds, $1,400,000, 102-unit RESIDENTIAL DEVELOPMENT, 50-acres, EAST HAVEN, BRANFORD, NORTH BRANFORD, CONN.

MIDDLE ATLANTIC

BIDS ASKED—HEAVY CONSTRUCTION

▲ **PENNSYLVANIA**—BA 4/5—Pennsylvania Turnpike Comn., 11 N. 4 St., Harrisburg,

Luzerne Co.—Section 37-1, 2.87 mi. Pittstown Twp. and Dupont Borough,

Luzerne and Lackawanna Counties—Section 37-J 3.54 mi. in Pittston Twp., Luzerne Co. and Moosic, Lackawanna Co. Northeastern Exten. of Turnpike. Plans deposit $20 each. R H. Stone, c/o owner, ch. engr. CD 10/28/53.

† **N. Y., Idlewild**—PAVING, etc.—BA 4/12—The Port of New York Auth., 111 Eighth Ave., New York, Zone 11, furnishing, installing paving and floodlighting for Gates 7A and 8A, New York International Airport, Contract NYA-620.001. Plans deposit $30. CD 2/25.

N. J., Hoboken—PIER SUBSTRUCTURE—BA 4/19—The Port of New York Auth., 111 Eighth Ave., New York 11, N. Y., rehabilitation and widening substructure of Pier 3, Hoboken—Port Authority Piers, Contract HP 120.007. Plans deposit $30. CD 5/16/52.

BIDS ASKED—BUILDINGS

▲ **N. Y., Salamanca**—HOUSING—BA 4/12—Salamanca Housing Auth., City Hall, (1) foundations and general constr. incl. street and yard imprvs. (2) heating and ventilating work, (3) electric work (4) plumbing for Salamanca Housing Proj. No. NYS-69 Front Ave. between Memorial Park and Fern Ave. Plans deposit $25. William Lescaze, 211 E. 48 St., New York Zone 17. archt. CD 9/21, under LB.

▲ **N. Y., Hempstead**—MACY STORE—BA About 4/28—Roosevelt Field, Inc., c/o Webb & Knapp, Inc., 383 Madison Ave., New York, Zone 17, Macy Store In shopping center on 130-acre tract. Skidmore, Owings & Merrill, 575 Madison Ave., New York, N. Y., archts. CD 3/9/54.

▲† **Del., Dover**—HOSPITAL SITE IMPRVS., etc.—BA 5/12—U. S. Eng., 2635 Abbottsford Rd., Phila., Pa. hospital site imprvs., and utilities, Dover Air Force Base, ENG-36-109-55-59, $3,000,000. Whiteside Foster, Dammon & Doane, Inc., Penna Bldg., Wilmington, archt.-engr. CD 11/6.

▲ **N. Y., Plattsburgh**—SHOULDERS PAVING—BA 8/18—U. S. Eng., 111 E. 16 St., New York, Zone 3, paving runway shoulders, FY 56, Plattsburgh Air Force Base. $1,000,000-$3,000,000. Seelye, Stevenson, Value & Knecht, 101 Park Ave., New York Zone 17, archts. CD 10/15/52.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

Bryan Constr. Co., Inc., 171 River Rd., North Arlington, N. J., CA, $677,134, Contract HT 160.001 New Jersey Service bldg. and admin. bldg. alterations at Jersey City, N. J., Holland Tunnel, NEW YORK-NEW JERSEY. The Port of New York Auth., 111 8th Ave., New York 11, N. Y. Bids Mar. 8. CD 3/10, under LB.

▲ **NEW JERSEY**—New Jersey Turnpike Auth., Administration Bldg., New Brunswick,

S. J. Groves & Sons Co., U. S. Hy. No. 9, Woodbridge, N. J., LB $4,965,712, Contract W-2, grading, drainage, paving, structures in connection with widening N. J. Turnpike from Camden-Philadelphia interchange to Pennsylvania Turnpike Connection, Burlington Co. Bids Mar. 17. CD 2/28.

▲ **NEW JERSEY**—New Jersey Turnpike Auth., Administration Bldg., New Brunswick,

Reid Contg. Co., Inc., 23 Main St., Woodbridge, N. J., CA $7,303,287. Contract W-3, grading, drainage, paving, structures in connection with wid'n. N. J. Turnpike from Pennsylvania Turnpike connection to north of Cranbury-South River Rd., Burlington, Mercer and Middlesex Counties. Bids Feb. 25, awarded Mar. 17. CD 2/28, under LB.

▲ **NEW JERSEY**—New Jersey Turnpike Auth., Administration Bldg., New Brunswick,

Union Bldg. & Contg. Co., 631 Main Ave., Passaic, N. J., CA $2,733,377, Contract W-5, widening turnpike from Lincoln Tunnel interchange to George Washington Bridge interchange in Ridgefield Park, Hudson and Bergen Counties. Bids Mar. 8. CD 3/10, under LB.

▲† **C. J. Langenfelder**, 8427 Pulaski Hy., Baltimore, Md., LB, $1,989,000. parking apron exten., washrack, McGuire Air Force Base, ENG-36-109-55-47, WRIGHTSTOWN, N. J. U. S. Eng., 2635 Abbottsford Rd., Phila., Pa. Bids Mar. 10. CD 2/10.

† **C. J. Langenfelder & Son, Inc.**, P.O. Box 5106, Baltimore, Md., CA $754,736, alert hangar extens., outside utilities, airfield and road imprvs., Dover Air Force Base, ENG-36-109-55-41, DOVER, DEL. U. S. Eng., 4635 E. Abbottsford Rd., Phila., Pa. CD 3/8, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲† **Fleischer Eng. & Constr. Co.**, 934 Ellicott Sq., Buffalo 3, N. Y., LB, $1,069,906, Sch. I, Ontario Site, Sch. II, Cambria Site; Sch. III, Grand Island Site; Special AAA facilities for Troop HOUSING, Niagara Defense Area, incl. barracks, quarters, administration, recreation and storage buildings, Serial No. ENG-30-075-55-312, NEW YORK. U. S. Eng., 111 E. 16 St., New York 3, N. Y. Bids Mar. 17. CD 2/11.

▲ **W. E. Pfeil Building Co., Inc.**, 40 Arlington Pl., Depew, N. Y. Owner Builds. $2,600,000. 200 new HOMES, Grandview Terrace, Edward St., S. Main St. and River St., BATAVIA, N. Y.

▲ **Vermilya-Brown Co., Inc.**, 100 E. 42 St., New York 17, N. Y. CA Est. $1,500,000. CLASSROOM BLDG. and DORMITORY at Management Research & Development Institute, on 25-acre tract, CROTONVILLE, N. Y. General Electric Co., 1 River Rd., Schenectady, N. Y. Frederick G. Frost Assocs., 144 E. 30 St., New York, N. Y., archts.

▲ **Stackler & Frank**, 204 Front St., Hempstead, N. Y. Owner Builds. $40,000,000. Mid-Island Plaza SHOPPING CENTER, HICKSVILLE, N. Y. Lathrop Douglass, 518 Fifth Ave., New York 36, N. Y., archt. CD 4/15.

▲ **F. D. Rich Co., Inc.**, 322 Main St., Stamford, Conn., LB, $4,693,000 general contract;

Whiteney-Dierks Heating Corp., 100 Parker Ave., Poughkeepsie, N. Y., LB, $608,363, heating work;

A. J. Eckert Co., 1062 Central Ave., Albany, N. Y., LB, $463,000, sanitary work;

Keller Electric Co., 36 Genesee St., New Hartford, Conn., and **Smith Electric Co.**, 100 Remsen St., Cohoes, N. Y., LB, $394,200, electrical work for MEDICAL SURGICAL BLDG., Marcy State Hospital, MARCY, N. Y. Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany, N. Y. Bids Mar. 17. CD 2/9.

Cauldwell-Wingate Constr. Co., 101 Park Ave., New York 17, N. Y. CA Est. $750,000. 2 story OFFICE,

(Continued on page 84)

PROJECTS COVERED

By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $44,000; other public works $73,000; industrial buildings $93,000; other buildings $344,000. Also Foreign projects of $100,000 and more in size of interest to American contractors.

By Regions & Classes of Construction

(In order of Listing)

BIDS ASKED
LOW BIDDERS
CONTRACTS AWARDED

New England	Middle West
Middle Atlantic	West of Mississippi
South	Far West

PROPOSED WORK

Water Supply	Public Buildings
Sewers, Waste Disposal	Mass Housing
Bridges	Commercial Buildings
Streets & Roads	Industrial Buildings
Earthwork, Waterways	Unclassified

In These Stages

PROPOSED WORK: Before and including appointment of engineers or architects.

BIDS ASKED: BA (new announcements only). For full calendar, see also preceding issues.

LOW BIDDERS: LB On jobs below $500,000 in value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.

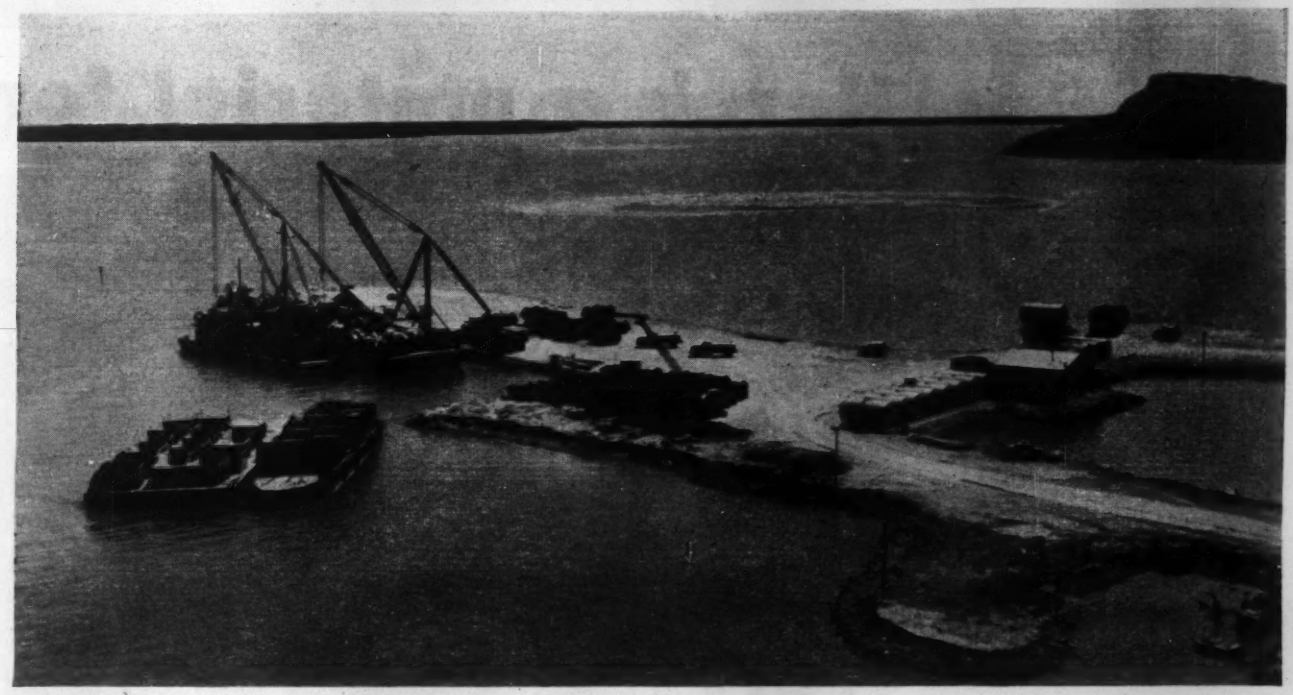
CONTRACTS AWARDED: CA Except awards to low bidders previously reported in low bidder stage.

CD dates shown are of Construction Daily issue in which last previous report was published.

Symbols and Abbreviations Include:

† Federal Government
▲ Project of $1,000,000 or over.
ENR Engineering News-Record
CD Construction Daily

For additional reports see Construction Daily.



Maracaibo Breakwater Job Progressing On Schedule

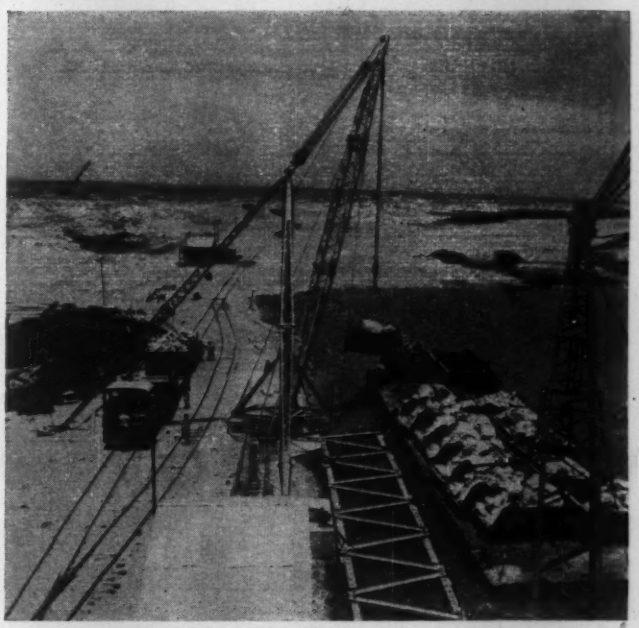
Now under construction at the entrance to Lake Maracaibo, Venezuela, is a breakwater to keep the canal open allowing ships to come in to the lake from the Caribbean Sea.

Maintaining building schedules on this 11,500 foot long dike, 100 feet wide at the base and 24 feet wide at the top which protrudes 10 feet above the surface of the water, requires the highest quality, most dependable equipment available.

General contractor Campenon Bernard of Venezuela assured himself of trouble-free, continuous material handling operations by selecting four Clyde hoists and four Clyde derricks for the job.

Two hoists and derricks at a quarry on Toas Island, load rock into barges. The barges are towed to Zapara Island, the start of the dike where two more Clyde hoists and derricks transfer the rocks to trucks for discharging on the dike.

It's rugged work but Clyde equipment is designed and built to stand up and give month after month of dependable, economical service.



Whatever your material handling problems are, compare the value and quality of Clyde equipment. Write for special bulletins on any type of Clyde products.

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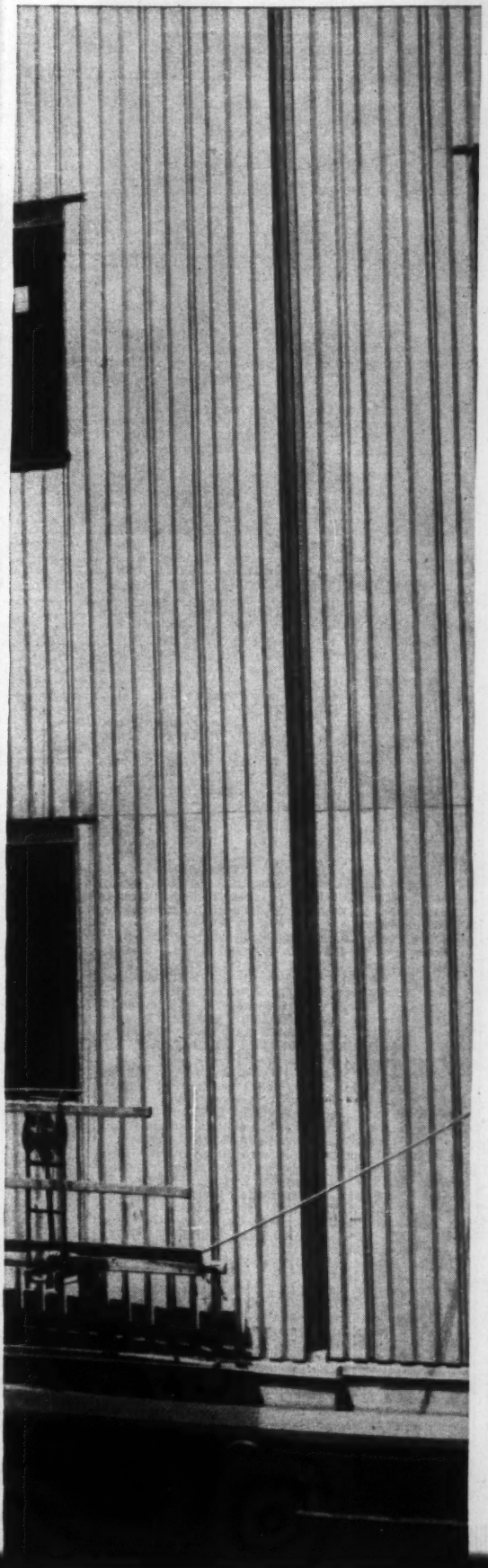

that solved a weight problem in Bellevue Hospital expansion

STAINLESS STEEL

One of the primary advantages of Stainless Steel as a material for curtain wall construction is the saving in weight its use makes possible. Because Stainless is inherently strong and because no allowance need be made for the effect of corrosion, thin sections can be used.

Never has this advantage of Stainless Steel been better illustrated than in the addition of two floors to New York City's Bellevue Hospital. Existing foundations were limited in the amount of additional weight that could be carried. Stainless Steel panels, weighing 14 pounds per square foot compared with 130 pounds for masonry, were used. This permitted the structural steel to be far lighter, too.

The attractive appearance of Stainless Steel was another factor in its use on this hospital. The architect sought to give the addition the appearance of a totally new facility, rather than a mere expansion without aesthetic appeal. Stainless panels accomplished this, along with permanent good looks.

Erection was handled rapidly with a four-man crew installing four 30-square-foot panels an hour. The construction had more than the required 2-hour fire ratings and the panels had the insulating quality of a 12-inch masonry wall.

As the producer of USS Stainless Steel, we have worked closely with the fabricators of Stainless Steel panels for curtain wall construction. We'll be glad to send you further information and put you in touch with these fabricators. Write to United States Steel Corporation, Room 4682, 525 William Penn Place, Pittsburgh 30, Pa.

* * *

SEE The United States Steel Hour. It's a full-hour TV program presented every other week by United States Steel. Consult your local newspaper for time and station.

Newly installed Stainless Steel panels on the Bellevue Hospital addition. Architects and engineers: Fellheimer & Wagner. General contractors: Buhl Construction Company. Design and construction under the supervision of the New York City Department of Public Works. Stainless Steel panels fabricated by H. H. Robertson Company.

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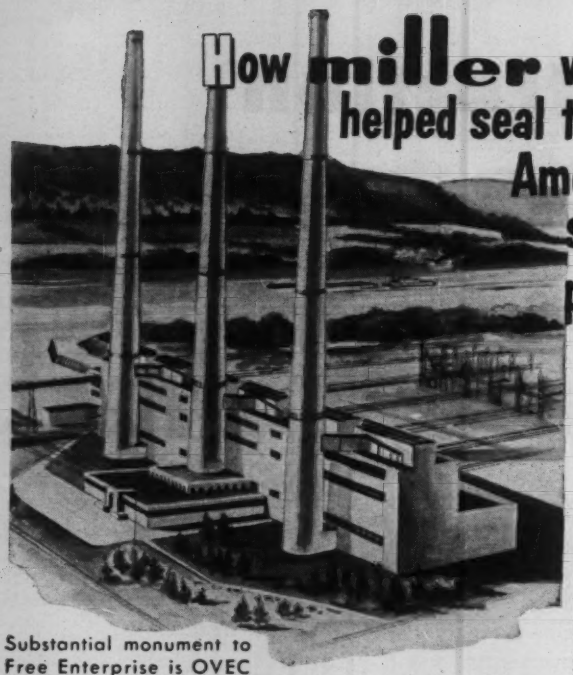
UNITED STATES STEEL

How miller welders helped seal the arteries of America's largest single purpose power plant...



Substantial monument to Free Enterprise is OVEC and IKEC, suppliers of electric power to the Atomic Energy Commission's new uranium diffusion center in Pike County, Ohio.

Ohio Valley Electric Corporation and its subsidiary, Indiana-Kentucky Electric Corporation, agreed to supply electric power to this great new atomic production center . . . *15 billion kilowatt-hours annually.*

Miller Selenium Rectifier d-c Arc Welder, in four wide-range models. For complete, concise, worthwhile information on these and other Miller Arc and Spot Welders, contact us today . . . at no obligation, of course.

Two huge generating stations are being built: The Kyger Creek Plant at Cheshire, Ohio will have five generating units of 200,000 KW each; Madison, Indiana's Clifty Creek plant will produce 1,200,000 KW with its six big generators. Each of the eleven turbo-generating units will operate off a single boiler, with super-heated steam reaching 1,050 degrees Fahrenheit under 2,000 lbs. pressure per square inch! The high temperatures and reheat, which the sponsor companies have pioneered in their own right, will make these two plants among the most economical, most efficient generating stations in the country.

These same elements, however, make the fabrication of faultless high-pressure steam lines vital . . . and extremely difficult. To accomplish this extremely important task, pipe welding specialists equipped with the maximum of engineering skill utilized the Miller Selenium Rectifier d-c Arc Welder.

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(Continued from page 80)

Broadway between 67 and 68 Sts., NEW YORK, N. Y. Syndicate, c/o contractor, H. I. Feldman, 415 Lexington Ave., New York 17, N. Y., archt.

▲ **Blackwood Estates, Inc.**, 10 Rose Ave., Maple Shade, N. J., Separate Contracts, $3,500,000 RESIDENTIAL DEVELOPMENT, BLACKWOOD, N. J. Lester H. Weckesser, Erlton, N. J., archt.

William G. Ral, Bridgeton, N. J., Separate Contracts, $350,000 RESIDENTIAL DEVELOPMENT, Lake Drive Rd., etc., BRIDGETON, N. J. Carl Thomas Prior, Vineland, archt.

▲ **Walter Kidde Constructors, Inc.**, Passaic Ave., Caldwell Twp., N. J., CA Est. $2,500,000. design and construct 250,000 sq. ft. PLANT, CLIFTON, N. J. Parker-Kalon div. General American Transportation Corp., 200 Varick St., New York, N. Y.

A. A. LaFountain, Inc., 1745 N. Olden Ave., Trenton, N. J. LB $918,700, HIGH SCHOOL addn., Herbertsville Rd., FREEHOLD, N. J. Regional Bd. Educ., Freehold, N. J. Bids Mar. 15. CD 2/16.

Castle Builders, Att. Joseph Stefano, N. Broad St., Gibbstown, N. J., Separate Contracts, $350,000. RESIDENTIAL DEVELOPMENT, various locations, GIBBSTOWN, N. J. William Dean Faint, Pennsauken, N. J., archt.

Delaware Twp. Bldg. Corp., 1383 Westbury Dr., Phila., Pa., Separate Contracts, $350,000. RESIDENTIAL DEVELOPMENT, Cherry Hill, HADDONFIELD, N. J. Erlenge Wenge, McClatchy Bldg., Upper Darby, Pa., archt.

Costanza Contg. Co., Pennsauken, N. J., LB Total est. $355,245, ELEMENTARY SCHOOL, Gary Ave., PENNS GROVE, N. J. Upper Penns Neck Twp. Bd. Educ., Penns Grove, N. J. CD 10/13.

Bd. Educ., Salem, N. J., rejected bids Feb. 17, Elementary SCHOOL, Smith St., SALEM, N. J. LB $465,150. CD 3/9, under LB.

Albert Enourata & Co., 1478 Prospect St., Trenton, N. J. Separate Contracts, $500,000, four APARTMENTS, White Horse Ave., TRENTON, N. J. Kramer Hirsch & Carchidi, 115 W. State St., Trenton, N. J., archts.

▲ **Everett J. Hoopes**, 143 E. Lancaster Ave., Downingtown, Pa. Separate Contracts. $5,000,000. 300 RESIDENCES, SHOPPING CENTER, DOWNINGTOWN, PA.

▲ **Lenel Constr. Co.**, 6700 N. Broad St., Phila., Pa. Separate Contracts. $1,500,000. 96 RESIDENCES, Welsh Rd., HORSHAM, PA.

William J. Scarlett, Kennett Square, Pa. Separate Contracts. $500,000. RESIDENTIAL DEVELOPMENT, Lawnfield Estate, KENNETT SQUARE, PA.

Elmer E. Miller & Arthur K. Warfield, 723 N. Jackson St., Media, Pa. Separate Contracts. $945,000. RESIDENTIAL DEVELOPMENT, Creek Rd., MEDIA, PA.

John McShain, Inc., 17th and Spring Garden Sts., Phila., Pa., CA $500,000. SCHOOL, PHILA., PA. Stella Maris R. C. Church, 3103 S. 13 St., Phila., Pa. Bids Feb. 25. CD 2/17.

▲ **Valley Homes, Inc.**, 17th and Thompson Sts., Phila., Pa., CA $2,000,000. RESIDENTIAL DEVELOPMENT, Roxborough Sect., PHILA., PA. Owner, c/o general contractor, Henry S. Berg, 1411 Walnut St., Phila., Pa., archt.

John Wilson, 1448 W. 69 Ave., Phila., Pa. Separate Contracts. $360,000. RESIDENTIAL DEVELOPMENT, Tustin Ave., PHILA., PA. G. Harold Murphy, 1621 Sellers St., Phila., Pa., archt.

R & L Marion Bros., Inc., 6215 Race St., Phila., Pa. LB $500,000. RESIDENTIAL DEVELOPMENT, ROSLYN, PA. Owner, c/o general contractor.

▲ **Wilson Constr. Co., Inc.**, 305 Bedford St., Johnstown, Pa., LB $1,379,000. SENIOR HIGH SCHOOL, STATE COLLEGE, PA. State College Joint School Auth., State College, Pa. Dean Kennedy, Clarence Bauchspies & Kenneth J. Heidrich, State College, Pa., archts.

Chardove Realty Co., 175 Main St., White Plains, N. Y. Owner Builds. $500,000. 5 story, basmt., concrete, steel, masonry OFFICE, 2221 to 2229 N. Charles St., BALTIMORE, MD. Bonnett & Brandt, 605 Park Ave., Baltimore 1, Md., archts.

Nelson Constr. Co., 4216 Greenway St., Baltimore 18, Md. Owner Builds. $486,000. fifty-four 2 story, 40x30x28 ft., brick HOMES 5800 and 5900 Plumer St., BALTIMORE, MD. W. Lloyd Wallace, c/o owner, engr.

Facciola Constr. Co., 29 and Van Buren Sts., Wilmington, Del. CA Est. $344,000. 1 and 2 story, 206x233 ft., rein.-con., steel, brick, concrete block SCHOOL, PARISH HALL and CONVENT, EASTON, MD. Sts. Peter & Paul Parish, Easton, Md. F. Leonard Slagle, 4630 Montgomery Ave., Bethesda, Md., archt.

▲ **Magazine Brothers**, Woodward Bldg., Wash., D. C. $3,000,000. 390 unit APARTMENT, New Hampshire Ave. and Fox St., Adelphia Section, HYATTSVILLE, MD. Syndicate, c/o contractor. Corning & Moore, 1726 M St. N.W., Wash., D. C., archts.

▲ **Lang-Dade Constr. Co.**, P.O. Box 5436, Seat Pleasant, Md. CA Est. $5,000,000. SHOPPING CENTER, 20 stores, 1 story, 110x148 ft., 80x310 ft., brick, block, Palmer Park, UPPER MARLBORO, MD. Frank Development Co. No. 2, Inc., c/o builder. CD 3/10/54.

▲ **Metropolitan Homes, Inc.**, 2102 Stanley Ave., Rockville, Md. CA East. $1,800,000. 1 and 2 story, 135x640 ft., brick, block, concrete SHOPPING CENTER, 25 stores, Viers Mill and Randolph Rds., WHEATON, MD. Nathan Leven (Colonial Shopping Center), 923 15 St. N.W., Wash., D. C. F. J. Montgomery, 8614 Colesville Rd., Silver Spring, Md., archt. CD 1026, under CA.

▲ **Gordy & Son, Inc.**, New Castle, Del., Separate Contracts, $2,500,000, 250-unit RESIDENTIAL DEVELOPMENT, Kirkwood Gardens, NEWARK, DEL.

(Continued on page 86)

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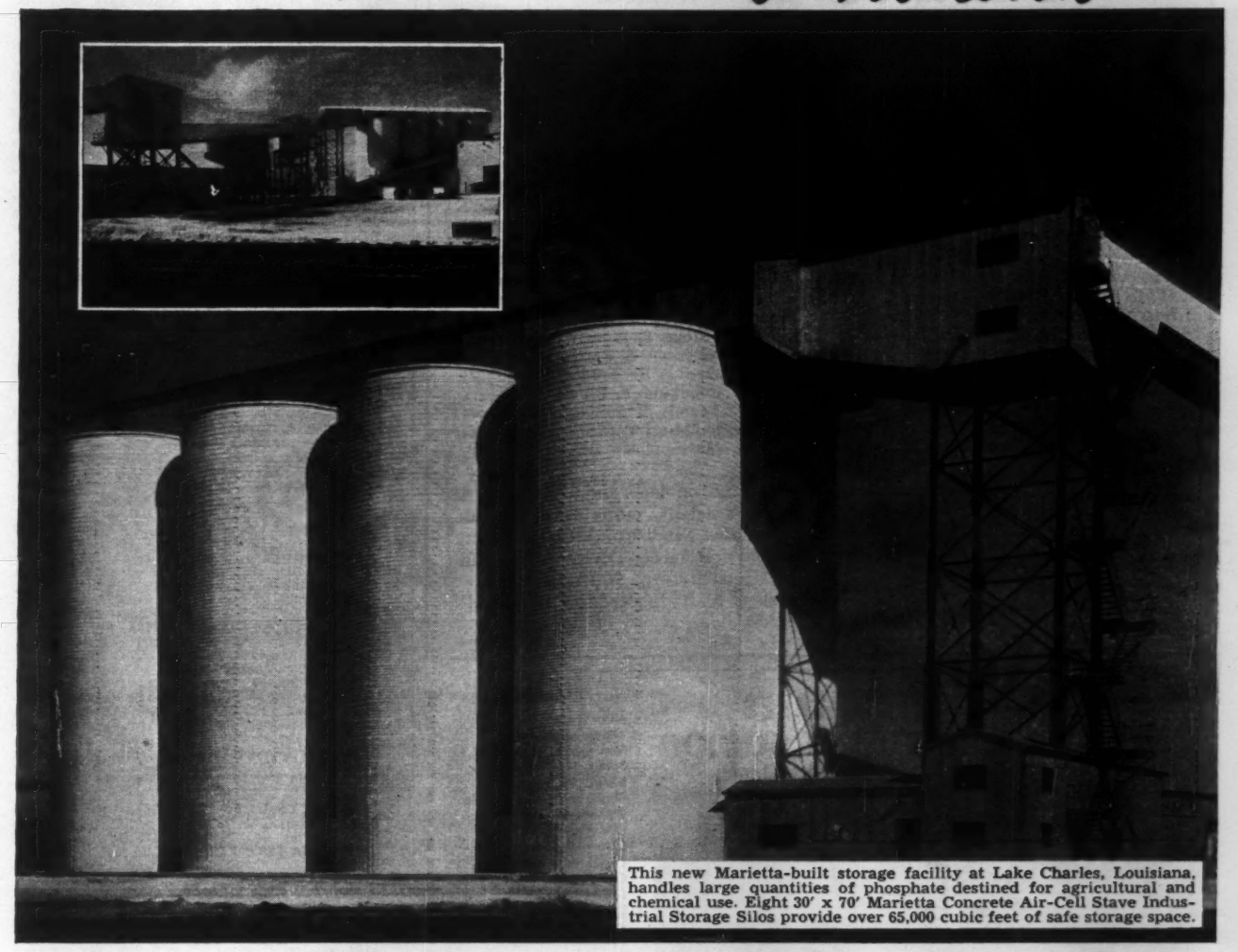

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Casco Bay Power Project	Central Maine Power Company
Delaware River Power Project	Jackson & Moreland Co., Engineers
Southeast Expressway, Mass	Massachusetts Dept. of Public Works
Narrows Bridge Site, Brooklyn & Staten Is., N. Y.	Ammann & Whitney, Engineers
125th Street Bridge Site, N. Y. C.	Ammann & Whitney, Engineers
Narragansett Bay	New England Power Service Company
Baker River (Wash.) Hydraulic Development	Stone & Webster, Engineers
St. Lawrence Power Project	Sanderson & Porter, Engineers
Massachusetts Turnpike	Howard-Needles-Tammen & Bergendoff, Engineers
Garden State Parkway, New Jersey	Goodkind & O'Dea, Engineers
The Connecticut Expressway	Loomis & Sullivan, Engineers
The Connecticut Expressway	Knappen-Tippetts-Abbett-McCarthy, Engineers
Portland, Pa. Power Plant	Metropolitan Edison Company

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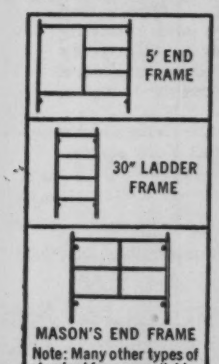

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San Antonio, Texas
San Diego, California
San Francisco, California
Spokane, Washington
Stockton, California
Tuscon, Arizona
Utica, New York
Washington, D. C.

(Continued from page 84)

SOUTH

BIDS ASKED—BUILDINGS

Va., Fairfax—SCHOOL—BA 4/5—Fairfax Co. Bd. Educ., Falls Church, Crestwood Elementary School, $400,000. Plans deposit $75. Willgoose & Chase, 300 Montgomery St., Alexandria, archts. CD 5/10.

Va., Warwick—SCHOOL—BA 4/13—City, School Bd., 118 Main St., Carver High School addn. $500,000. Samuel N. Mayo, 1900 W. Broad St., Richmond, archt. CD 12/13.

Va., Lexington—SCHOOL—BA 4/28—Rockbridge Co. School Bd., F. S. Kay, supt., 15 Washington St., elementary school, near Natural Bridge. $500,000. Plans deposit $35. F. R. Hurt & C. D. Hurt Jr., 144 Church St., Waynesboro, archts.

Ga., Thomaston — BA 4/19 — SCHOOLS — State School Bldg. Auth., 41 Exchange Pl. S.E., Atlanta, Lincoln Park Elementary School addn. for Negroes, Yatesville Elementary School for Negroes; Fellowship Elementary School for Negroes; Thomaston Training School for Negroes; Yatesville Elementary and High School; James R. Atwater Elementary and Junior High School addn; John Thurston Elementary and Junior High School addn.; John G. Gordon Elementary and Junior High School addn.; Rockhill Elementary and Junior High School addn. Plans deposit $50 each. Charles W. Jenkins, 326 Healey Bldg., Atlanta, archt.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲SOUTH CAROLINA—State Hy. Dpt., Hotel Jefferson, Columbia,

S. C.—Bank Constr. Co., Inc., Charleston Heights, S. C. LB $88,371. resurf. 11.18 mi. U.S. Rte. 78 and Roads 29, 46, 49, 99, 106, 107, 376, 396 and 663 thru 670, S.C. Dockets Nos. 10.1061 and 10.427, Charleston Co.;

S. C.—Burns & Spangler Grading Contractors, Shelby, N. C. LB $93,084. bit. surf. with seal 7.313 mi. Roads S-108, S-407, S-453, S-558, S-736, S-805, S-663, S-85, S-1126 and S-1557, S.C. Docket No. 42.423, Spartanburg Co.;

S. C.—Cherokee, Inc., Sumter Hy., Columbia, S. C. LB $870,198. grading 13.561 mi. U.S. Rte. 17, S. C. Dockets Nos. 7.305 and 27.271, F.A. Projs. Nos. F 288 (5) Part 4, IN-79 (4), and F 79 (5) Parts 1, 2 and 3, Beaufort and Jasper Counties;

S. C.—Dickerson, Inc., Monroe, N. C. LB $456,280. grading 4.032 mi. U.S. Rte. 21, S. C. Dockets No. 46.307, Parts 1 thru 5, F.A. Projs. Nos. F-4 (3) Parts 1 thru 4 and F-246 (4), York Co.; LB $133,764, grading 8.118 mi., Roads 163, 164, 575, 585, 658 thru 662, 671 thru 682 and 684 thru 698, S. C. Docket No. 10.428, Charleston Co.; LB $104,116, surf. 9.644 mi. Roads 637 thru 657 and 699, S. C. Docket No. 10.429, Charleston Co.;

S. C.—W. M. Reagan & Sons, Inc., Sumter Hy., Columbia, S. C. LB $103,213. bit. surf. 13.564 mi. Roads 54, 55, 65, 145, 408, 190, 192, 193, 409 and 411, S. C. Docket No. 32.381, Lexington Co.;

S. C.—Reeves Brothers Constr. Co., Inc., Easley, S. C. LB $84,415. bit. surf. with seal 6.711 mi. Roads 57, 121 and 129, S. C. Docket No. 23.378, Greenville Co.;

S C.—Sloan Constr. Co., Inc., Peoples National Bank Bldg., Greenville, S. C. LB $123,957. resurf. 37.04 mi. U.S. Rtes. 29, 76, 178 and State Rtes. 81 and 88 and Roads 225 and 229, S. C. Dockets Nos. 4.1059 and 39.1058, Anderson and Pickens Counties; LB $98,765. resurf. 31.3 mi. U. S. Rte. 176, S. C. Dockets Nos. 9.105 and 38.1031, Calhoun and Orangeburg Counties; LB $111,988. resurf. 25.7 mi. State Rtes. 162 and 165, S. C. Dockets Nos. 10.1060 and 18.1020, Charleston and Dorchester Counties; LB $101,786. resurf. 26.63 mi. U. S. Rte. 321 and State Rte. 5, S. C. Dockets Nos. 11.1034 and 46.1037, Cherokee and York Counties; LB $225,232, resurf. 48.22 mi. State Rtes. 9 and 72, S. C. Dockets Nos. 12.1028 and 44.1026, Chester and Union Counties; LB $173,462, resurf. 39.67 mi. State Rte. 9, S. C. Dockets Nos. 17.1009 and 35.1019, Dillon and Marlboro Counties; LB $221,771, resurf. 22.7 mi. U. S. Rtes. 25 and 378, S. C. Dockets Nos. 19.1013, 24.1053 and 33.1016, Edgefield, Greenwood and McCormick Counties; LB $119,352, resurf. 23.64 mi. U. S. Rtes. 52, 301 and State Rte. 51, S. C. Docket No. 21.1027, Florence Co.; LB $117,844, resurf. 38.69 mi. U. S. Rte. 221 and State Rtes. 56 and 101, Roads 143, 145, 160, 280, 281, 282, 283, 284, 285, 341, 351, 719, 803, 890 and 892, S. C. Dockets Nos. 30.1045, 42.422 and 42.1066, Laurens and Spartanburg Counties; LB $150,735, resurf. 32.4 mi. U. S. Rtes. 21 and 321, S. C. Docket Nos. 40.1047, Richland Co.; LB $104,989, resurf. 26.6 mi. U. S. Rtes. 15, 15-A, 76, S. C. Docket Nos. 43.1022, Sumter Co. Bids Mar. 15. CD 3/3 and 3/8.

▲ Sullivan, Long & Hagerty, 2028 2 Ave. N, Bessemer, Ala., CA, $1,118,309, Div. XE-12, XE-13, XE 14 and XE 15; CA, $222,546 Div. XC-6, Palma Cela Trunk Sewer;

Cone Bros. Contg. Co., Caeser and Cumerland Aves., Tampa, Fla., CA, $168,089, Div. XE-16 sewer imprvs., TAMPA, FLA. City Bd. Representatives, City Hall, Tampa, Fla. Grand total $1,508,944. Bids Mar 1, awarded Mar. 3. CD 2/7.

ALABAMA—State Hy. Dpt., Montgomery, rejected bids Jan. 7, bit. tr. 6.752 mi. part of Line Creek-Tuskegee Rd. F-92 (3), Macon Co. LB $522,717. Will re-advertise. CD 1/21, under LB.

▲ Farnsworth & Chambers Co., Inc., Protection Levee, New Orleans, La. CA $4,081,512. general cargo docks, Port Allen, BATON ROUGE, LA. Greater Baton Rouge Port Comn., 141 N. Jefferson St., Baton Rouge, La. Bids Mar. 14. CD 2/25.

▲ Clinchfield Concrete Co., Kingsport, Tenn., LB, $184,707, Contract 3; LB $525,501, Contract 4; Sullivan, Long & Hagerty, 2028 2 Ave N., Bessemer, Ala., LB, $491,710, Contract 5, for WW Imprvs., MARYSVILLE, TENN. City, City Hall, Marysville, Tenn. Bids Mar. 3. CD 2/4.

BUILDINGS

LOW BIDS AND CONTRACTS

† Virginia Engineering Ck., Inc., 29 St. at James River, Newport News, Va. CA $897,000. four Bachelor Officers' QUARTERS, FORT EUSTIS, VA. U S. Eng., foot of Front St., Norfolk, Va. CD 3/15, under LB.

J. H. Fralin, P.O. Box 5037, Roanoke, Ca. CA $531,500. HIGH SCHOOL addn., WAYNESBORO, VA. City, F. B. Glenn, supt., Waynesboro, Va. Bids Mar. 16. CD 2/1.

▲ L. F. Freeman, 1075 Carlisle Ave., Macon, Ga., CA, $1,432,626. Brewton-Condor Elementary and High SCHOOL, Wilkes Elementary SCHOOL mech. remodeling Cadwell Elementary SCHOOL addn., Dexter Elementary SCHOOL addn., Consolidated Negro SCHOOL (Millville Area) Negro SCHOOL (Fleming-Mary Grove Area) Consolidated Negro SCHOOL (Brewton Area) DUBLIN, GA. State School Bldg. Auth., 41 Exchange Pl. S.E., Atlanta, Ga. Bids Feb. 10, awarded March 15. (Correction-contractor). CD 2/28, under CA.

MIDDLE WEST

SOON LETS CONTRACT—BUILDINGS

Ill., Chicago—TEMPLE—Congregation B'nai Abraham Zion, c/o Walter H. Sobel, archt., 450 E. Ohio St., soon lets contract temple Harlem and Berkshire Aves. $525,000.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

Curro Constr. Co., 787 Union Commerce Bldg., Cleveland, O. CA $457,725. Sect. A, Contr. 3 trunk drain, Northeast Sewer Dist., MAPLE HEIGHTS, O. City, City Hall, Maple Heights, O. Bids Feb. 11. CD 1/26.

▲† Lee Constr. Co., 127 N. Dearborn St., Chicago, Ill., LB, $1,331,129, constr. two NIKE guided-Missile anti-aircraft installations, in vicinity of Libertyville, Lake Co., ENG-11-032-55-44, ILLINOIS. U. S. Eng., 475 Merchandise Mart, Chicago 54, Ill. Bids Mar. 4. CD 2/18.

Arcole Midwest Corp., 3225 Main St., Evanston, Ill., CA, $582,000, paving W. Birchwood Ave. area, CHICAGO, ILL. City, City Hall, Chicago, Ill. Bids Mar. 8, awarded Mar. 14. CD 3/15, under LB.

▲† S. J. Groves & Sons Co., Wesley Temple Bldg., Minneapolis, Minn. CA $2,111,556. airfield pavements, K. I. Sawyer U. S. Air Force Base, MARQUETTE, MICH. U. S. Eng., 1900 Cadillac Tower, Detroit, Mich. Bids Mar. 8. CD 2/17.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ Faxon Realty Co., 3601 Bellecrest St., Cincinnati, O. Own Forces. $1,575,000. 63 bsmnt. HOMES off Linwood d.; $600,000. fifteen 2 story, brick bsmnt. APARTMENTS, Linwood Rd. and Delta Ave., CINCINNATI, O. CD 5/6.

Alexandria Lumber Co., Joseph Brady, mgr., Alexandria, Ind. Owner Builds $509,000, HOMES in new addition at edge of ALEXANDRIA, IND.

▲ Major Corp., 2987 W. 5 St., Gary ,Ind., Own Forces, $1,100,000, 55 HOMES, GARY, IND. Richard Rudisch, c/o owner, archt.

▲ C. F. Braun & Co., 1000 S. Fremont Ave., Alhambra, Calif., CA, Est. $10,000,000 design and construct 55,000 bbl. a day CRUDE OIL DISTILLATION UNIT at plant, WHITING, IND. Standard Oil Co. of Indiana 910 S. Michigan Ave., Chicago 5, Ill.

Coath & Goss., 5103 W. Lake St., Chicago, Ill., CA, $684,194, HIGH SCHOOL addn. and GYMNASIUM addn., BARRINGTON, ILL. High School Dist. 22, 616 W. Main St., Barrington, Ill. Bids Mar. 8, awarded Mar. 14. CD 3/16, under LB.

Northern Builders, Inc., 4002 Addison St., Chicago, Ill., CA $600,000, LABORATORY, 47 St. at Pulask Rd., CHICAGO, ILL. Ready Foods Canning Corp., 515 N. Dearborn St., Chicago 10, Ill. Edw. S. Busche, 1514 N. Fairfield St., Chicago, Ill., archt. Awarded Mar. 8.

L. Maraviglia & Son, 7334 Diversey St., Elmwood Park, Ill., Own Forces, $900,000. 50 HOMES, CHICAGO, ILL.

Charles E. Schuetz & Co., 3909 W. 65 Pl., Chicago, Ill., Own Forces, $480,000. 30 HOMES, southwestern section, CHICAGO, ILL.

Illinois Hydraulic Constr. Co., 20 N. Crystal St., Elgin, Ill., CA $481,794, SCHOOL and RECREATIONAL BLDGS., ELGIN, ILL. St. John's Lutheran Church, Dexter and Spring Sts., Elgin, Ill. Bids Nov. 15, awarded Mar. 10. CD 12/8, under LB.

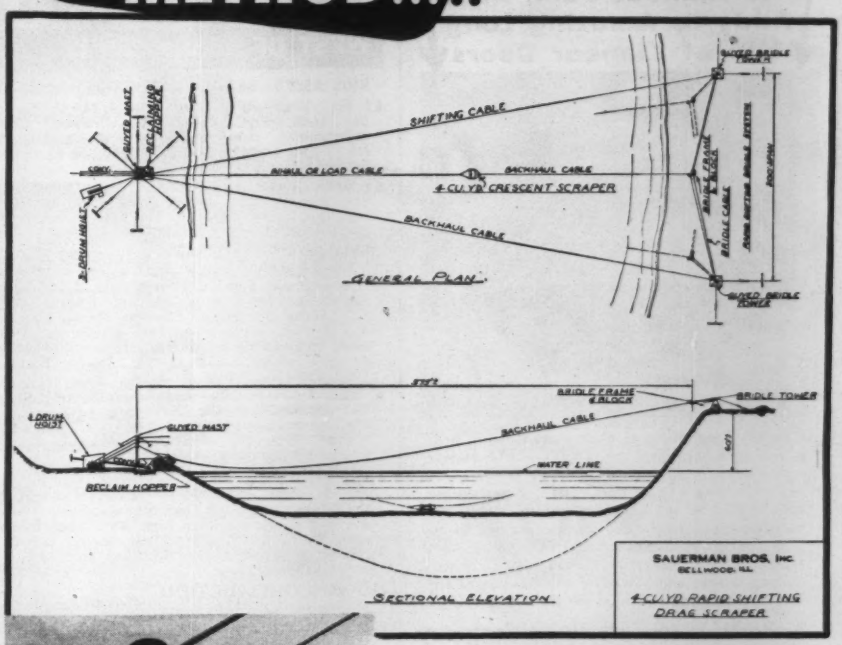
▲ Gleich Constr. Co., 516 Northwest Hy., Mt. Prospect, Ill., Own Forces, $1,500,000, 90 HOMES in area, MOUNT PROSPECT, ILL. James W. Viger, 666 Northwest Hy. Mt. Prospect, archt.

Hoskins Constr. Co., 141 W. Jackson Blvd., Chicago 4, Ill., CA, $650,000. RIDING CLUB, STABLES, indoor polo field, SCHILLER PARK, ILL. Tanbark Country Club, 9926 W. Lawrence Ave., Schiller Park, Ill. Tuchschmidt & Assocs., 179 W. Washington St., Chicago, Zone 2, archts.

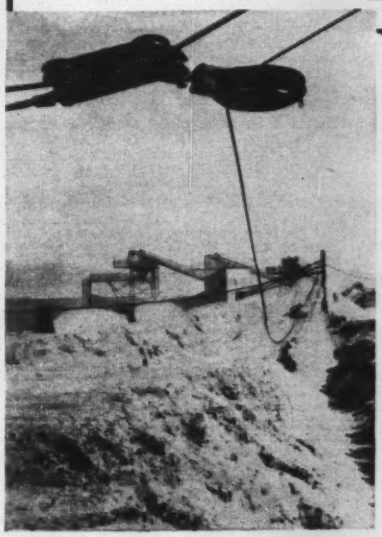
▲ Elmhurst Carpenters, 323 N. York Rd., Elmhurst, Ill., Own Forces, $3,600,000. 200 HOMES, WHEATON, ILL.

the SAUERMAN METHOD....

Scraper Machines Engineered to Your Operation



Above drawing was prepared for a specific drag scraper installation and does not represent maximum spans.



View shows rapid shifting bridle frame and all operating cables. Crescent may be seen in background conveying load to reclaiming hopper just in front of mast.

•

Contact Sauerman's engineering department for specific recommendations and information. No obligation.

Ask for Catalog A, Drag Scrapers—24 pages of job photos and specifications. Request Field Reports showing your material being handled by the low cost Sauerman Method.

The Sauerman Method works equally well over widely differing areas and span limits . . . on hills, swampy ground or underwater . . . handles any material a dragline can dig.

Every scraper machine is powered by a Sauerman Roller Bearing Hoist, especially designed to withstand sudden shocks and changes in speed.

When a rapid shifter is used, a third hoist drum is added to shift the bridle frame. The rapid-shifting bridle system (upper right of drawing) permits frequent shifting of the scraper's line of operation in non-caving material, shallow excavations or overburden.

Operating costs are lower—basically, it is cheaper to drag material than it is to lift and transport it. You eliminate the power costs of moving heavy machinery about the area. You pay only for pay loads—not dead weight. When expendable parts—sheaves, clutch or brake linings—are replaced, the machine is restored to practically new condition.

Sauerman can help you select the method of materials handling most profitable for your job—a system that will give you the lowest cost per cu. yd. handled.

SAUERMAN BROS. INC.

632 S. 28th AVE. | BELLWOOD, ILL.

Crescent Scrapers • Slackline and Tautline Cableways • Durolite Blocks

Double Protection

Heavy Galvanizing Plus Kinnear Paint Bond Adds To Amazing Long Life of Kinnear Doors

Kinnear Steel Rolling Doors are doubly protected against the elements —*before they receive prime and finish coats of paint in the field.* A heavy coating of 1.25 ounces of zinc per square foot (ASTM standards) provides lasting weather-resistance. And Kinnear's Paint Bond — a special phosphate treatment — assures *thorough* paint coverage. These rugged space-saving doors are a world-wide favorite for low-cost protection! Send for details.

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KINNEAR ROLLING DOORS
Saving Ways in Doorways

In a Hayward there's no contact between the closing mechanism and the gravel or other material handled. To be sure—this "no contact" feature is only one advantage. But a very important one to you—since it means much less wear, reduced upkeep, and a significant dollar-saving in bucket maintenance.

Note also, Hayward's extreme simplicity, the smaller number of parts—and all easily accessible—the larger closing sheaves particularly shaped to minimize rope wear, the extra large load capacity.

Write for folder today! THE HAYWARD COMPANY, 50 Church Street, New York 7, N. Y.

HAYWARD BUCKETS

CLAM SHELL • ELECTRIC • ORANGE PEEL • GRAPPLES
famous for performance since 1888

Miller-Davis Co., 1029 Portage St., Kalamazoo, Mich. CA Est. $900,000. STORE South Burdick and South Sts., KALAMAZOO, MICH. J. C. Penney Co., Inc., 14151 Woodward St., Detroit, Mich.

Miller-Davis Co., 1029 Portage St., Kalamazoo, Mich. CA $563,700. DORMITORY, 64 apartments for married students, Michigan State Normal School, YPSILANTI, MICH. State, A. N. Langius, dir. State Bldg. Dpt., Lewis Cass Bldg., Lansing, Mich. Bids Mar. 1. CD 2/24.

WEST OF MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION

▲† **Tex., Waco**—APRON, etc.—BA 4/14—U. S. Eng., Box 1600, Fort Worth, apron, runway, taxiway strengthening, James Connally Air Force Base, Inv. No. ENG-41-443-55-82. $1,250,000-$2,750,000. Extended date. CD 2/7.

▲† **South Dakota**—BA 6/8—U. S. Eng., 1709 Jackson St., Omaha, Neb., outlet works Stage IV control structures, Oahe Reservoir Proj., near Pierre, Inv. 25-066-55-112. CD 2/5/44.

BIDS ASKED—BUILDINGS

Mo., St. Charles—SCHOOL—BA About 4/25—Interparish Catholic High School, c/o Msgr. A. T. Strauss, pastor, St. Peter's Parish, and Rev. James V. Fallon, S.J., pastor St. Charles Borromeo Parish, 324 S. 3 St., 1 story, campus-type high school, on 41 acre tract, on Elm Park Rd. west of city limits. $600,000. A. F. & Arthur Stauder, 3609 S. Grand Blvd., St. Louis, Zone 18, archts. CD 3/14.

▲ **Tex., Tyler**—PLANT—Bids Asked—General Electric Co., 570 Lexington Ave., New York, N. Y., plant for mfg. home cooling units, $12,500,000; warehousing-storage, $300,000; plant area earthwork, drainage, paving, lighting, $100,000. CD 3/7.

SOON LETS CONTRACT—BUILDINGS

Minn., St. Paul—SYNAGOGUE—Temple of Aaron, 743 Holly Ave., soon lets contract synagogue, Hartford Ave. and Mississippi River Blvd. $550,000. P. Goodman, 40 E. 49 St., New York, N. Y., and C. A. Hausler & Assoc., 1593 University Ave., St. Paul, archts. CD 12/10.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

Steenberg Constr. Co., 1371 Marshall Ave., St. Paul, Minn. CA $909,003. joint sewage treatment plant for city and state hospitals, FARIBAULT, MINN. State, Dpt. Admin., State Capitol, St. Paul, and City of Faribault. R. Kruger, clk., Faribault, Minn. Bids Mar. 15. CD 2/16.

▲ **Barbarossa & Sons, St. Cloud, Minn. and H. Nodland** Constr. Co., Alexandria, Minn. CA $1,117,943. 119,-300 lin. ft. sanitary sewer and lift station, GOLDEN VALLEY (MINNEAPOLIS P. O.), MINN. CD 3/17, under LB.

▲† **Peter Kiewit Sons Co.**, 1024 Omaha National Bank Bldg., Omaha, Neb. CA $1,760,979. apron and taxiway;

J. W. Bateson Co., Gibralter Life Bldg., Dallas, Tex. CA $2,304,175. hangars, Ellsworth Air Force Base, Inv. 25-066-55-63, RAPID CITY, S. D. U. S. Eng., 1709 Jackson St., Omaha, Neb. CD 3/11, under LB.

† **C. H. Leavell & Co.**, 1900 Wyoming St., El Paso, Tex. LB $894,996. corrugated roof, LB $876,396. metal deck roof, air national guard facilities at Lincoln Air Force Base, Inv. 25-066-55-66, LINCOLN, NEB. U. S. Eng., 1709 Jackson St., Omaha, Neb. Bids Mar. 16. CD 2/18.

KANSAS—Kansas Turnpike Auth., El Dorado,
List & Weatherly Constr. Co., 231 W. 47 St., Kansas City, Mo. LB $563,338, est. $605,195. eight continuous span steel beam bridges, Butler and Sedgwick Counties. Bids Mar. 11. CD 3/4.

▲ **KANSAS**—Kansas Turnpike Auth., El Dorado,
C. F. Lytle Co., 250 Insurance Exchange Bldg., Sioux City, Ia. LB $428,480, est. $415,956. grading, drainage 4.42 mi. near Wichita, Butler and Sedgwick Counties; LB $484,422, est. $496,692. grading, drainage 5 mi. between Andover and Eldorado, Butler Co.; LB $505,056, est. $556,180. grading, drainage 10 mi. near El Dorado, Butler Co. Bids Mar. 11. CD 3/4.

† **Purch. & Contg. Office**, Altus Air Force Base, Altus, Okla., rejected bids Feb. 1. statistical service bldg., No. 34-612-55-15-"B", ALTUS, OKLA. CD 1/28.

Walco Eng. & Conustr., 2408 E. 4 Pl., Tulsa, Okla. CA $554,628. water treatment plant, addns., BARTLESVILLE, OKLA. City, Bartlesville, Okla. Bids Feb. 28. CD 2/8.

▲ **Bechtel Corp.**, 220 Bush St., San Francisco, Calif., CA, Est. $30,000,000, 800-mi. oil pipe line between El Paso, Tex., and Los Angeles, Calif. TEXAS, NEW MEXICO, ARIZONA AND CALIFORNIA. Southern Pacific Pipe Lines Inc., Southern Pacific Pipe Lines Inc., (Southern Pacific Ry. Co., parent owners), 913 Franklin St., Houston, Tex. Awarded Mar. 8. CD 2/25 and 2/28.

BUILDINGS

LOW BIDS AND CONTRACTS

Kileen & Wille Constr. Co., 1402 Poplar Ave., Superior, Wis. LB $674,960. general contract 1 story, grade SCHOOL, Hoyt Lakes, AURORA, MINN. Bd. Educ., M. Rosandich, clk., Aurora, Minn. Bids Mar. 15. CD 3/1.

Rolph Constr. Co., Luverne, Minn. LB $507,774. general contract Westside Grade SCHOOL, Eastside Grade SCHOOL addn. and HIGH SCHOOL SHOP addn., MARSHALL, MINN. Bd. Educ., Dr. M. J. Carrow, clk., Marshall, Minn. Bids Mar. 15. CD 2/9.

Knutson Constr. Co., 300 E. Hennepin Ave., Minneapolis, Minn. CA $414,830. general contract LAW SCHOOL addn., on Main Campus, MINNEAPOLIS, MINN. Regents of University of Minnesota, C. A. Smith, purch. agt., 404 Admin. Bldg., Main Campus, Minneapolis, Minn. CD 3/7, under LB.

St. Louis Constr. Co., Dale Notestine, pres., 4144 Lindell Blvd., St. Louis 8, Mo. Owner Builds. $600,000. 125 addnl. RESIDENCES, in Sect. 3 of Westridge Acres near here on Kehrs Mill Rd. between Manchester and Clayton Rds., BALLWIN, MO.

▲ **Melvin H. Glick & Co.**, 44 N. Brentwood Blvd., Clayton 5, Mo. Separate Contracts. $20,000,000. subdivision development 1,000 RESIDENCES, SUPERMARKET, SHOPPING CENTER, with 2 bldgs. housing 30 stores, 100,000 sq. ft. rental space in all, parking area, on 300 acre tract north side of Olive St. Rd. east of Lindbergh Blvd., OLIVETTE (ST. LOUIS 14 P.O.), MO. Isador Shank, 2 S. Brentwood Blvd., Clayton 5, Mo. Horner & Shifrin, Shell Bldg., 1221 Locust St., St. Louis 3, Mo., engrs.

▲ **J. E. Pyle**, 400 E. McDaniel St., Springfield, Mo. LB $1,123,029. general contract Parkview High SCHOOL, SPRINGFIELD, MO. Bd. Educ., 940 N. Jefferson St., Springfield, Mo. Bids Mar. 9. CD 2/1.

▲ **B. & H Builders**, 4628 Dodge St., CA Est. $2,340,000. 260 DWELLINGS, 60th St. and L Sts., OMAHA, NEB. D & M Co., 4628 Dodge St., Omaha, Neb.

▲ **C. E. Vollmer Constr. Co.**, 840 N. Main St., Wichita, Kan. LB $1,929,800. general contract;
Geren Sheet Metal Works, 535 N. Washington St., Wichita, Kan. LB $524,137. mechanical contract Southeast High SCHOOL, WICHITA, KAN. Bd. Educ., 428 S. Broadway, Wichita, Kan. Bids Mar. 4. CD 2/8.

River Oaks Corp., c/o Walter Blanton, Carrollton, Tex. Own Forces. $648,000. 48 DWELLINGS, CARROLLTON. TEX. CD 12/3.

▲† **J. D. Hedin Constr. Co.**, 2900 Newton St. N.E., Wash., D. C. CA $3,933,500. HOSPITAL, HOUSTON, TEX. Veterans Admin., Munitions Bldg., Wash., D. C. Bids Mar. 1. CD 3/3, under LB.

Jersey Village Development Co., c/o N. E. Kennedy, pres., First Natl. Bank Bldg., Houston, Tex. Owner Builds, $489,185 (I) 39 DWELLINGS, HOUSTON, TEX. CD 10/5.

Harwell & Harwell, Box 177, San Antonio, Tex., LB $544,240, Girls' DORMITORY, KINGSVILLE, TEX. Texas College of Arts & Industries, Kingsville, Tex. Bids Mar. 15. CD 3/1.

Walter Kidde, Inc., Box 8084, Houston, Tex., CA, $650,000, design and construct WAREHOUSE, WAXAHACHIE, TEX. Owners, c/o Walter Kidde, Inc., engr., Box 8084, Houston, Tex. CD 3/17.

FAR WEST

BIDS ASKED—HEAVY CONSTRUCTION

▲ **Utah, Salt Lake City**—AIRPORT—BA 4/15— Salt Lake City Corp., City Comn., City-County Bldg., municipal airport, incl. resurf. runways, aprons, $1,000,000. CD 2/1.

SOON LETS CONTRACT—BUILDINGS

▲ **Calif., Los Angeles**—OFFICE—Pacific Homes Corp., 1055 N. Kingsley Dr., soon lets contract 3 story, Santa Monica Blvd. and Hobart St. $1,000,000. Neptune & Thomas, 1560 W. Colorado St., Pasadena, archts. CD 11/3.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

NEVADA—State Hy. Dpt., State Office Bldg., Carson City,
Dodge Constr. Inc., 346 N. Maine St., Fallon, Nev. CA $645,294, constr. portion State Hy. Sys. 13.479 mi. from junction U. S. 95, 4 mi. south of Fallon to Salt Wells and between 6.6 mi. and 8 mi. southeast of Salt Wells, Rte. Sec. 002-2. Cont. Secs. CH-19, CH-04 and CH-05. Contr. No. 914, Proj. No. F-002-2(3), Churchill Co. Bids Mar. 17. CD 3/9.

▲† **Vinnell Co., Inc.**, 1145 Westminster Ave., Alhambra, Calif., CA $1,169,943, relocate 2 hangars, etc., Edwards Air Force Base, ENG-04-353-55-111, MUROC CALIF. U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif. Bids Mar. 10, awarded Mar. 14. CD 3/16, under LB.

▲ **Walsh Constr. Co.**, 785 Market St., San Francisco, and E. V. Lane, P.O. Box 417, Palo Alto, Calif., CA $2,774,774, sewage treatment plant, Esteros Rd., SAN JOSE, CALIF. City, City Hall, San Jose, Calif. Bids Feb. 14, awarded Mar. 2. CD 2/18, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

M. Morrin & Son, Box 1148, Ogden, Utah, CA, $724,994, est. $600,000, HIGH SCHOOL addn., FARMINGTON, UTAH. Davis County School Bd., Farmington, Utah. Bids Mar. 1. CD 3/10, under LB.

E. T. Saunders Constr. Co., Ogden, Utah, CA $525,629 ELEMENTARY SCHOOL, 33 and Gramercy Sts., OGDEN, UTAH. Ogden City School Bldg., 2340 Grant Ave., Ogden, Utah. Bids Mar. 10. CD 3/3.

Bell & Valdez Development Co., 1044 116 Ave. N.E., Bellevue, Wash., Day Labor, $878,100, 69 HOUSES, S.E. 37 St. and 142 Pl. S.E., BELLEVUE, WASH. CD 12/15/54.

▲ **John E. Branagh & Son**, 42 La Salle St., Piedmont, Calif., CA, $1,272,926, 60-bed HOSPITAL, NILES, CALIF. Washington Twp. Hospital District, Niles, Calif. Bids Jan. 20, awarded Mar. 2. CD 2/2, under LB.

(Continued on page 90)

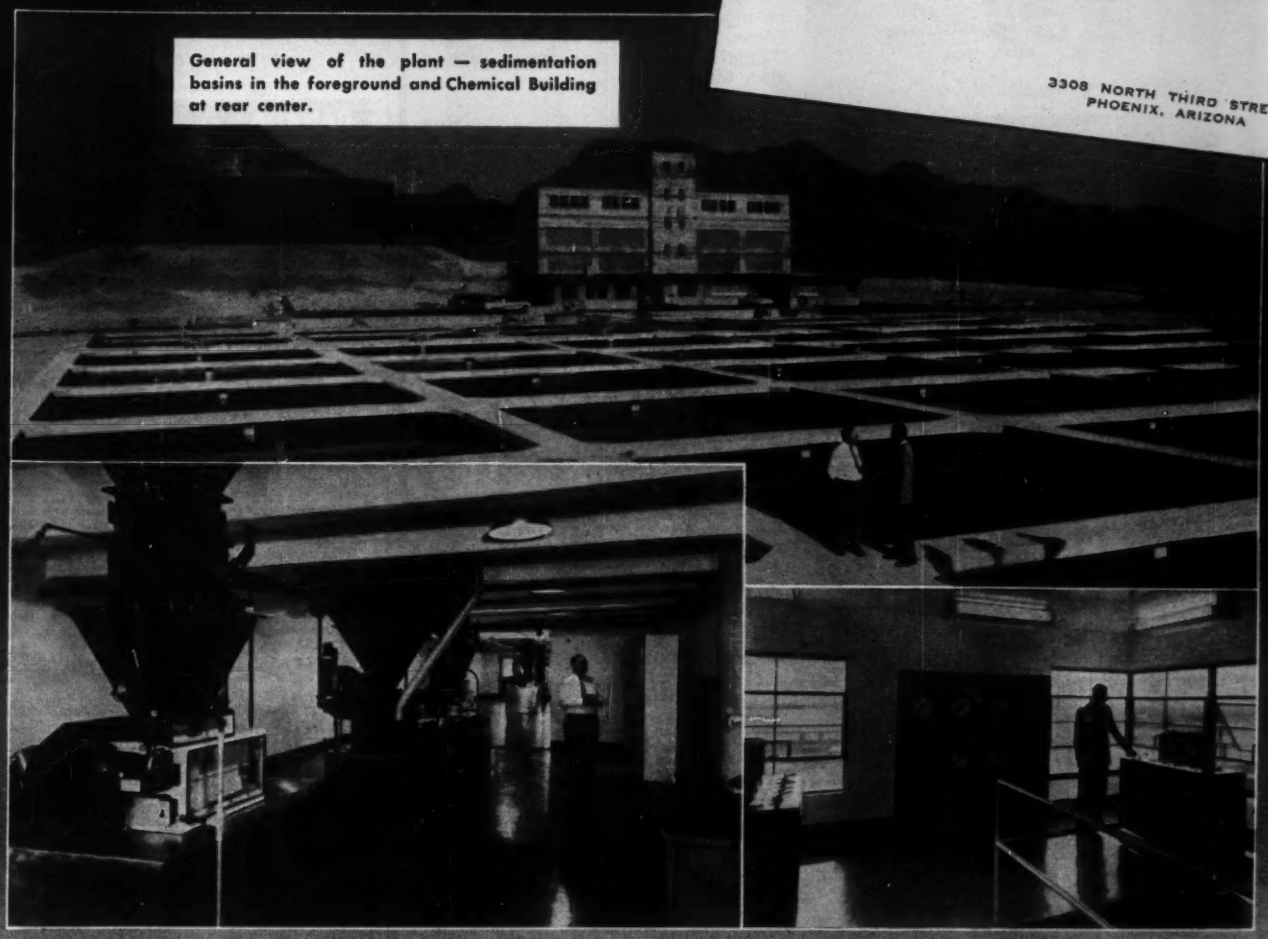
PHOENIX, ARIZ.

Squaw Peak Filter Plant

(COMPLETED IN 1954)

HEADMAN, FERGUSON AND CAROLLO
CONSULTING ENGINEERS

3308 NORTH THIRD STREET
PHOENIX, ARIZONA



General view of the plant — sedimentation basins in the foreground and Chemical Building at rear center.

Interior view of Chemical Building showing Omega Chemical Feeders and Lime Slakers. C. U. Pollard, Plant Supt., is checking plant operation at the centralized Control Panel at right.

Leon W. Jackson, Resident Engineer for Headman, Ferguson and Carollo, at filter table with Builders Loss-of-Head and Rate-of-Flow Gauges. The main instrument panel shown here and a second "repeater" panel in the Chemical Building meter all major plant functions by means of Builders Chronoflo and Pneumatic Instruments.

When people talk about growth areas of this country, the name Phoenix, Arizona is sure to come up. In the last ten years alone, the population of greater Phoenix has increased by over 200 per cent. Manufacturing today rivals agriculture for the top industry of the state. Everything about Phoenix points to continued municipal growth in the years ahead.

Part of Phoenix's progressive planning is the new Squaw Peak Filter Plant and Reservoir, a $2,069,000 project which now brings the Phoenix water supply to 114 MGD total capacity. The Omega Dry Chemical Feeders in this modern plant were selected with an eye to the future — for their ability to give faithful, accurate service for years to come. For full information on the Omega Feeders and Lime Slakers at Squaw Peak, write Omega Machine Company, Providence 1, Rhode Island.

OMEGA *THE LAST WORD IN* FEEDERS

DIVISION OF B-I-F INDUSTRIES, INC.

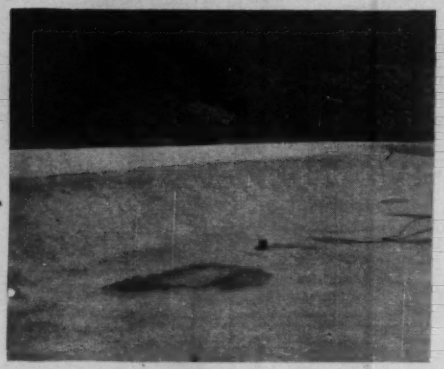
BUILDERS IRON FOUNDRY • PROPORTIONEERS, INC. • BUILDERS-PROVIDENCE, INC.

B·I·F METERS FEEDERS CONTROLS

OLD RESERVOIR MADE BETTER THAN NEW

with "GUNITE" lining placed over the original lining.

The two pictures show the reservoir belonging to the Borough of Hellertown, Penna. The upper view shows the "GUNITE" work in progress, and the lower view the completed lining.



This old concrete lined reservoir was badly cracked and disintegrated with considerable leakage.

We chipped out the disintegrated concrete, sandblasted the entire area, and placed a minimum of two inch "GUNITE" reinforced with heavy mesh.

This reservoir is now water-tight and better than new.

Our 72-page bulletin A-3000 describes many reservoir jobs and scores of other uses of "GUNITE."

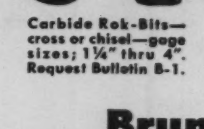
Write for your copy of bulletin A-3000

CEMENT GUN COMPANY
"GUNITE" CONTRACTORS
GENERAL OFFICES – ALLENTOWN, PA., U. S. A.

MANUFACTURERS OF THE CEMENT GUN

ROK·BITS® *at Monticello Dam*

The stripping operation, at this northern California dam site, is another important project where carbide Rok-Bits and Brunner & Lay drill steel were used—1⅝, 1¾, 1⅞ and 2-in. four-point Rok-Bits on Brunner & Lay 1¼" round steel. Rok-Bits and B & L drill rods are specified everywhere by men who know their drilling cost. Join them! For details, write plant nearest you.



Carbide Rok-Bits—cross or chisel—gage sizes; 1¼" thru 4". Request Bulletin B-1.

Faces and names on the Monticello job—left to right—Geo. Keyes; Excavating Super.; Waldon Lowe; Paul Holton; Doug Baker, Gen'l Supt., Clarke Hestmark; Sherm Watson of Peter Kiewit Son's Co. & Parish Bros.

Brunner & Lay Products

ALLIED CONSTRUCTION EQUIPMENT

Brunner & Lay, Inc., 9300 King St., Franklin Park, Ill.

Brunner & Lay Rock Bit Corp., 2514 E. Cumberland St., Philadelphia 25, Pa.

Brunner & Lay Incorporated, 2425 East 37th St., Los Angeles 58, Calif.

Brunner & Lay, Inc., 150 Leslie St., Dallas, Texas

Brunner & Lay Rock Bit Corp., Sweeten Creek Rd., Asheville, N.C.

Brunner & Lay Corp., 600 N. Tillamook St., Portland 12, Ore.

(Continued from page 88)

Williams & Burrows, Inc., 500 Harbor Blvd., Belmont, Calif., CA, $814,300. altering 2 DORMITORIES, PALO ALTO, CALIF. Stanford University, Palo Alto, Calif. Awarded Mar. 2. CD 4/8/53.

A. L. Gindling & Co., 2960 Wilshire Blvd., Los Angeles, Calif., Owner Builds, $629,300. 74 frame, stucco DWELLINGS, Betchner and Prichard Sts., etc., PUENTE, CALIF.

Nylin P. Hurd, 1317 Santiago St., Santa Ana, Calif., CA, $500,000, five brick CHURCH BLDGS., SANTA ANA, CALIF. First Christian Church, 602 N. Broadway, Santa Ana, Calif.

Nicholson Barnhart Co., 586 Walsh Ave., Santa Clara, Calif., CA $639,633, mfg. and distr. PLANT, Kifer Rd., SUNNYDALE, CALIF. Patterson & Pacific Parchment Co., 340 Bryant St., San Francisco, Calif. Bids Feb. 17. CD 2/16.

CANADA

BIDS ASKED—HEAVY CONSTRUCTION

▲ **Ont., Toronto** — GRANDSTAND — BA 4/6 — Ontario Jockey Club Ltd., 103 Church St., superstructure for grandstand at new race course incl. 5 tiers, 210x280 ft., 6000 seating 4 story, 130 x 310 ft., steel, concrete club house. $5,000,000. Earle C. Morgan, 906 Yonge St., archt. Wallace, Carruthers & Assocs., 35 Isabella St., engrs. CD 3/4/53.

BIDS ASKED—BUILDINGS

▲ **Que., Montreal** — OFFICE, etc. — BA 4/11 — Thrift Stores Ltd., 960 Outremont Ave., office and warehouse near corner Bedford Rd. and Darlington Ave. near C.P.R. tracks. $1,000,000. Luke & Little, 1515 Crescent St., archts.

Ont., London—CAFETERIA, etc.—Bids Asked—University of Western Ontario, Dr. G. B. Hall, pres., London, 2 story, 115x156 ft., stone, cafeteria and dining hall, $700,000. O. Roy Moore, & Co., 260½ Dundas St., archts.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

Combustion-Engineering-Super Heater Ltd., 69 Yonge St., Toronto, LB $148,271 6-units of pumping equipment at water filtration plant on Kingston and Kennedy Rds.;

S. McNally & Sons Ltd., 2200 King St. E., Hamilton, Ont., LB, $536,442, 42 and 36 in. water mains from Avenue Rd. and Caribou Ave. to Lawrence Ave. and Caledonia Rd., TORONTO, ONT. Municipality of Metropolitan Toronto, 67 Adelaide St. E. Toronto, Ont. CD 2/8/54.

H. J. McFarland Constr. Co. Ltd., Talbot St., Picton, Ont., LB, $639,651, 2,000x200 ft. runway exten., Trenton Airport, TRENTON, ONT. Dpt. Transport, Hunter Bldg., Ottawa, Ont. Bids Mar. 14. CD 3/1.

▲ **Marine Industries Ltd.**, 1405 Peel St., Montreal, Que., CA, $8,219,000, clearing St. Louis Lake channel incl. 3,800,000 cu. yd. overburden 100,000 cu. yds. solid rock; CA $384,000 dredging 600,000 cu. yd., sand, silt and clay from Lake St. Francis channel near Montreal;

Canadian Dredge & Dock Co. Ltd., Harbor Commission Bldg., Toronto, Ont., CA $4,698,000, removal 2,700 cu. yd. overburden to form seaway channel in Lake St. Francis near Montreal;

McNamara Contr. Co. Ltd., 42 Industrial St., Toronto, Ont., CA, $682,000, removal 1,100,000 cu. yd. silt, Sand and clay to form a channel in Lake St. Francis at the approach to the Beauharnois Canal near Montreal, QUEBEC. St. Lawrence Seaway Auth., No. 2 Temporary Bldg., Ottawa, Ont. Grand total $13,983,000. Bids Mar. 14. CD 2/25.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Anglin-Norcross Ontario Ltd.**, 224 Davenport Rd. Toronto, Ont., CA, $10,935,000, superstructure for 13 story HOSPITAL, University Ave., TORONTO, ONT. Toronto General Hospital, 101 College St., Toronto, Ont. Bids Mar. 8, awarded Mar. 18. CD 2/4.

Bourget Constr. Inc., 601 Cote Vertu Montreal, Que., Owner Builds, $595,000, 7 bldgs., APARTMENT BLOCKS, on new streets in St. Laurent Suburbs, MONTREAL, QUE. J. Romeo Desjardins, 3605 Hochelaga St., Montreal, Que., archt. CD 2/4.

Concrete Constr. Ltd., 1082 Decarie Blvd., Montreal, Que., CA $500,000, superstructure of FACTORY unit at Pie IX Blvd. and Notre Dame St. E., MONTREAL, QUE. Canadian Spool Cotton Co. Ltd., 421 Pie IX Blvd., Montreal, Que. Wood, Blackford & Ship, 4444 Sherbrooke St. W., Montreal, Que., archts.

ALASKA

BIDS ASKED—HEAVY CONSTRUCTION

† **Alaska**—BA 4/21—Alaska Road Comn., Dpt. Interior, Federal Bldg., Juneau,

I-beam bridges on Alaska Hy. over Beaver Creek, Berry Creek and Little Gerstle River 1 to 3 spans each. W. J. Neimi, ch. engr. Plans deposit $10.

† **Alaska, Petersburg**—BA 4/27—Alaska P. Wks., Dpt. Interior, 123 W. 3 St., Juneau, 10, 325 ft. 6- to 12-in. sewers, 15,750 ft. 4- to 10-in. water mains and street work, Proj. Aaa 50-A-19. $506,000. Plans deposit $25. CD 10/23/52.

BIDS ASKED—BUILDINGS

† **Alaska, Anchorage**—SHOP—BA 4/12—Alaska Road Comn., Dpt. Interior, Federal Bldg., Juneau, 1½ story, 40x60 ft., frame shop bldg., rein.-con. fdn's. Plans deposit $10.

LATIN AMERICA

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **International General Electric Co.,** 570 Lexington Ave., New York, N. Y. CA Est. $14,425,000, 75,000 kw. thermo-electric plant to pump water for Tuy River to Tuy River Dam, BRAZIL. Corporacion de Fomento, Caracas, Venezuela.

▲ **Sociedad Venezolana de Estudios y Construcciones,** Caracas, Venezuela. CA $5,998,660, Puerto Cabello Drydock, PUERTO CABELLO, VENEZUELA. Ministry of P. Wks., Govt. Venezuela, Caracas, Venezuela. CD 11/20/52.

FOREIGN

BIDS ASKED—HEAVY CONSTRUCTION

India—GENERATING PLANTS—BA 8/26—The Director-General of Supplies & Disposals, New Delhi, Tender No. Porj./SE2/379/F for purchase of (I) three sets, hydro-electric generating plants, complete with 34,000 hp. turbines, 23,000 kva generator, etc. (II) 11/132 KV step up transformers (III) 132 kv switch-gears, 400 volts, A.C. switchboards, etc. (IV) cables for Gandhi Sagar Power Station of Chambal Proj., Madhya Bharat. Plans deposit $23.10.

Proposed Projects

WATER SUPPLY

▲ **Colo., Colorado Springs**—City, City Hall, reservoir on Pikes Peak to be known as North Catamount Reservoir, $2,000,000. CD 10/9/51.

▲ **Mass., Orleans**—Town, Bd. Selectmen, Town Hall, municipal water sys. $1,120,000, Whitman & Howard, 89 Broad St., Boston, consult. engrs. CD 2/24/53.

▲ **Neb., Omaha**—Metropolitan Utilities Dist., 18 and Harney Sts., pre-sedimentation basins, $754,000; water pumping station electrical equip., $153,000; filter plant equip. for water department, $250,000; sedimentation basin equip. for water department, $139,000. J. C. Detweiler, c-o owner, water engr.

N. C., Monroe—City, City Hall, capacity of Lake Lee impounding dam increased and filtering plant enlarged. $500,000.

Okla., El Reno—City, 6 addnl. wells, enlarging treatment plant. $750,000. Rex Collins, McAlester, consult. engr. CD 9/20.

▲ **Tex., Amarillo**—City, c/o N. V. Moss, mgr., City Hall, voted bonds Mar. 6, 25 mi. water lines with pump station and water wells. $6,000,000. Freese & Nichols, 407 Danciger Bldg., Fort Worth, consult. engrs. CD 2/15.

▲ **Tex., Waxahachie**—City, voted bonds Mar. 5, water retention dam to give city surface water supply. $1,500,000.

Que., Pointe Claire—Town, Town Hall, filtration plant in Memorial Park on Lake Shore Rd. $500,000. J. St. Pierre, town engr. H. W. Lea, 1226 University St., Montreal, consult. engr.

SEWERS, WASTE DISPOSAL

▲ **Ind., Vincennes**—City Bd. P. Wks., City Hall, sewer expansion and sewage disposal plant $1,000,000. CD 5/1/46.

▲ **O., Dayton**—Comrs. Montgomery Co., Court House, sanitary sewers, water lines in Holes Creek area, serving Washington Twp. $3,049,000; trunk sewer lines for Bear Creek Sewer Dist., west of here, $133,000; sewage treatment plant for Bear Creek Sewer Dist., $260,000. Donald Rhodes, 127 N. Perry St., co. sanitary engr. CD 1/31/52.

▲ **Va., Danville**—City, T. E. Temple, mgr., Municipal Bldg., sewage disposal plant and treatment plant. $2,000,000. Hayes, Seay, Mattern & Mattern, 1615 Franklin Rd., Roanoke, consult. engrs. H. L. Bowling, city engr. CD 2/12/53.

STREETS AND ROADS

▲ **ARKANSAS**—State Hy. Dpt., Capitol, Little Rock,

Craighead and Mississippi Counties—grading, surf. 10 mi. Hy. 158, Caraway, $250,000.

Crittenden and Mississippi Counties—widening, strengthening 42.8 mi. State Hy. 61, Osceola-north, $1,800,000.

Cross Co.—grading, surf. 18 mi. Hy. 75, $216,000.

Hempstead Co.—grading, surf. 14 mi. Hy. 29, Hope-Bevins, $350,000.

Howard and Hempstead Counties—grading, surf. 14 mi. Hy. 24, Nashville-McCaskill, $350,000.

Monroe Co.—grading, surf. 14 mi. State Hy. 17, Holly Grove, $280,000.

Phillips Co.—grading, surf. 23 mi. Hy. 44, Elaine, $270,000.

grading, surf. 17 mi. Hy. 44 and 84, Elaine, $345,000.

Polk Co.—grading, surf. 10.4 mi. Hy. 8, Big Fork, $271,000.

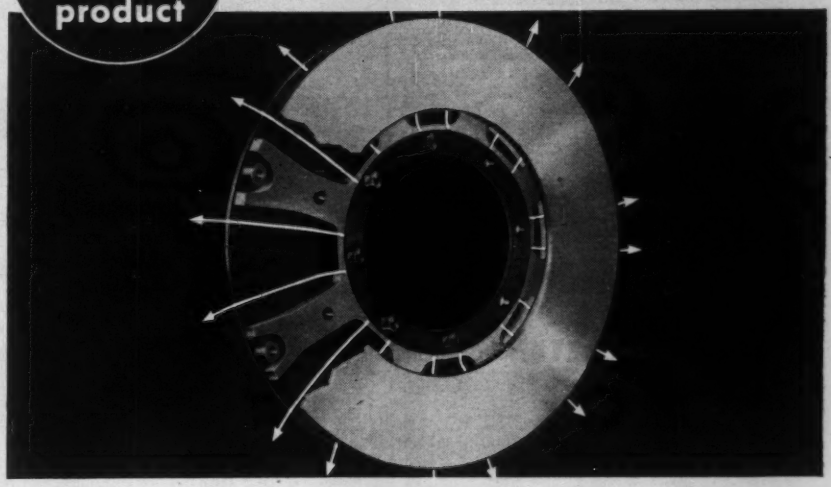
▲ **ARKANSAS**—State Hy. Comn., Little Rock,

Crittenden Co.—relocation Hy. 61 from Lake David 45 mi. north to Missouri Border incl. constr. 4-lane divided hy. $15,000,000.

Ouachita Co.—bypass around Camden on Hys. 79 and 4 to 24 and 4 also 64 ft. street from business section to intersection with proposed bypass $10,500,000.

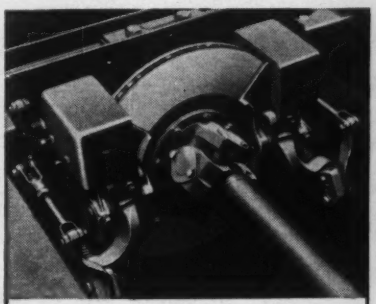
an ACCO product

Tru-Stop Brakes for the Construction Industry



This Brake "Breathes"— and Linings Last Longer

• Long recognized as the outstanding emergency brake for heavy trucks, tractors and motorized equipment, TRU-STOPS are now being used to brake cable drums on cranes, shovels and other construction equipment. Specify them to insure these advantages:



Lower Service Requirements

TRU-STOPS seldom need service. Their simplicity of design and accessibility greatly reduce maintenance requirements. When used as emergency brakes, they are mounted directly on the drive shaft. Relining or adjustment is a simple job for any mechanic with ordinary tools. It is not necessary to drop the drive shaft.

Longer Lining Life

In all applications, the terrific heat generated in braking cuts lining life. As illustrated above, TRU-STOPS' special ventilated design quickly dissipates this heat. Most of the disc is exposed to the air even during braking. And a cooling jet of air circulates through the disc, prolongs lining life.

Real Emergency Brakes

On motorized equipment TRU-STOPS *are real emergency brakes—not just parking brakes.* They serve as auxiliary brakes assisting service brakes on down-grades if required. They prevent accidents by insuring quick, positive stops in emergencies.

Positive Parking Brakes

TRU-STOPS hold safely on steep grades—prevent "parking brake" accidents.

Specify TRU-STOPS for factory installation on your next truck, tractor, crane, shovel or other piece of equipment.

Write for literature describing application of TRU-STOPS to your particular equipment

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Automotive and Aircraft Division
AMERICAN CHAIN & CABLE

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2216 South Garfield Ave., Los Angeles 22 • Bridgeport 2, Conn.

TRU-STOP Emergency Brakes

EASY, PROVEN WAY to PERMANENTLY BOND CONCRETE TO CONCRETE

WELD-CRETE®

Weld-Crete is the amazing liquid bonding agent which enables you to *permanently* bond new concrete *directly* to old concrete . . . or to most any other structurally sound surface . . . *without need for costly, time-consuming chipping, drilling, roughening, acid washing or scarifying of concrete base.*

Weld-Crete has equal bonding permanence all climates, all surfaces, all sorts of conditions. When used with quick setting cement topping you can lay new floors, ramps, driveways, etc. one day and run heavy truck traffic over them the next. Get facts from your building materials supply dealer or write Larsen Products Corp., Box 5756-I, Bethesda, Md.

TYPICAL **WELD-CRETE** APPLICATION

National Brick Co., Terra Cotta, D. C.

Here Weld-Crete was used to bond new ¾" concrete topping directly to old, badly chipped and spalled floor slab which had been subjected to ceaseless heavy truck traffic. Plant shut-down time eliminated as Weld-Crete enabled National's own mechanics to do job over week end.

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NAILED-DOWN & SLIP-IN PANS

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GATEWAY ERECTORS, INC.

3233 W. Grand Ave., Chicago 51, Illinois

▲ **MASSACHUSETTS**—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston, ten year program, 527 mi. double barreled limited across hys. mostly radiating from Boston, one from Worcester Section Rte. 110 and one from Rte. 5 across State from north to south further west, $1,000,000,000.

▲ **Va., Danville**—City, T. E. Temple, mgr., Municipal Bldg., paving 116 streets, constr. and reconstr. addnl. streets, curbs and gutters. $1,750,000. H. L. Bowling, city engr.

Va., Lynchburg—City, Robert D. Morrison, mgr., Lynchburg, completion of Lynchburg Expressway through to Rte. 29 South. $997,500.

EARTHWORK, WATERWAYS

▲ **New York**—Dpt. P. Wks., The Governor Alfred E. Smith State Office Bldg., Albany, imprv. Barge Canal System, incl. constr. of reconstr. lock walls, bulkheads, bridges, dock walls and other canal structures. $1,000,000.

AIRPORTS

† **Me., Bangor**—HOUSING—U. S. Eng., 857 Commonwealth Ave., Boston, Mass., 300 housing units, Dow Air Force Base, $500,000.

▲† **Md., Andrews Air Force Base**—HANGAR—U. S. Eng., First and Douglas Sts. N. W., Wash., D. C., hangar at Andrews Air Force Base, $1,000,000-$3,000,000. CD 10/1/51.

▲ **Mich., Detroit** — AIRPORT IMPRVS. — Bd. Supervs. Wayne Co., 3800 Cadillac Tower, $10,000,000 bond election Apr. 4, Detroit-Wayne Major Airport, terminal, aprons, taxiways, runways, customs bldg., lighting, underground fuel, storage facilities, Leroy C. Smith, co. engr. CD 1/4.

▲† **Ore., Klamath Falls**—AIR BASE—P. Wks. Officer, 13th Naval Dist., 1611 W. Wheeler St., Seattle, Wash. plans by H. R. Perrin, 1121 Main St., Klamath Falls, extend runway, constr. fuel storage facilities, taxiways, hangars, housing, communications and navigation facilities, utilities, hospital, etc. for Air Force Base. $4,133,000. CD 9/10.

PUBLIC BUILDINGS

Calif., Berkeley—PARKING RAMP GARAGE—City, City Hall, plans by Headman, Ferguson & Carollo, 2168 Shattuck Ave., five level parking ramp garage, $553,000. CD 2/11/53, under Unclassified.

▲ **Calif., Escndido**—SCHOOLS—Escondido Union Elementary School Dist., Escondido, $750,000 bond election May 20, school.

▲ **Calif., Fullerton**—SCHOOS—Fullerton Union High School & Junior College District, 340 E. Wilshire Blvd., voted $3,300,000 bonds, new high school and Junior College addns. CD 12/21.

▲ **Calif., Los Angeles**—FIRE STATIONS—City, City Hall, $4,000,000 bond election May 31, 34 fire stations over 6-year period.

▲ **Calif., Redwood City**—SCHOOLS—Sequoia Union High School District, Broadway and El Camino Real, defeated $6,250,000. bonds, schools. CD 1/4.

▲ **Colo., Boulder**—SCHOOLS—Boulder County School District, Boulder, voted $1,500,000 bonds schools. CD 2/8.

Colo., Colorao Springs—SCHOOL—School District No. 11, 406 North Weber St., high school adn. $783,050. Thomas & Sweet, 222 E. Bijou St., consult. engrs.-archts. CD 10/18.

▲† **Colo., Denver**—POWER PLANT EXPANSION—U.S. Atomic Energy Comn., P. O. Box 2611, Rocky Flats Plant, Denver, Atomic Power Plant Expansion. $1,500,000.

Conn., Windsor—SCHOOL—Town P. Bldg. Comn., 51 Mountain Rd., plans by Warren H. Ashley, 967 Farmington Ave., West Hartford, elementary school, Clover St. $750,000. Marchant & Minges, 967 Farmington Ave., consult. engrs. Charles A. Currier & Assocs., 967 Farmington Ave., West Hartford, site engr. CD 2/2.

Ind., Gary—SCHOOL—School, City of Gary, 524 Garfield St., plans by Schutt-Haley Assocs., 510 Jefferson St., elementary school, Iowa and 21 Sts. $650,000.

Ia., Ely—SCHOOL—Bd. Educ., Rural Route 1, Cedar, College Community District, Ely, voted $479,000 bonds, high school, $500,000.

▲ **Mass., Concord**—SCHOOL—Town, Bd. Selectmen, Town Hall, high school, $1,000,000.

Mass., Fall River—HOSPITAL—Union Hospital, 538 Prospect St., plans by Curtin & Riley, 45 Newbury St., Boston, hospital addn., alterations, Prospect St. $500,000-$600,000.

Mass., Ludlow—SCHOOL—Town, Supt. Schools, 53 Chestnut St., plans by Alderman & MacNeish, 594 Riverdale Rd., West Springfield, high school, $500,000.

▲ **Mich., Hazel Park**—HOSPITAL—City, Lenore Armour, clk., 44 W. 9 Mile Rd., project abandoned, hospital, $1,000,000, Smith-Hinchman & Grylls, Inc., 800 Marquette Bldg., Detroit, archt. CD 2/7.

Minn., Excelsior—SCHOOL—Bd. Educ., Independent School Dist. No. 7, Minnetonka, (P.O. Excelsior), W. T. Frommes, clk., voted $900,000 bonds Mar. 8, Deephaven Grade School and grade school addn. at Minnewashta, Thorshov & Cerny, 400 Metropolitan Bldg., Minneapolis, archts. for Minnewashta School. Bissell & Belair, 1111 Nicollet Ave., Minneapolis, archts. for Deephaven School. CD 2/16.

† **N. J., Fort Dix**—THEATRE—U. S. Eng., 2635 Abbottsford Rd., Phila., Pa., plans by Frank Grad & Sons, 11 Commerce St., Newark, theatre, $500,000.

▲ **N. Y., Helmuth**—BUILDING MODERNIZATION—Dpt. P. Wks., The Governor Alfred E. Smith State Office Bldg., Albany, modernizing Bldgs. No. 2, 3, 4, 5, 6, and 7, Gowanda State Hospital for Dpt. Mental Hygiene. $1,500,000. CD 7/11/45.

▲ **N. Y., Hudson**—AUDITORIUM—Dpt. P. Wks., The Governor Alfred E. Smith State Office Bldg., Albany, auditorium, gymnasium and vocational bldg. at Training School for Girls, for Dpt. Social Welfare. $1,200,000. CD 10/12/44.

▲ **N. Y., Newark**—ASSEMBLY HALL, etc.—Dpt. P. Wks., The Governor Alfred E. Smith State Office Bldg., Albany, assembly hall, $1,600,000; Bldg. No. 1 modernization, $580,000 at Newark State School, for Dpt. Mental Hygiene. CD 7/24/46.

▲ **N. Y., New York**—HOUSING—New York City Housing Auth., 299 Broadway, Zone 7, Housing for 300-families, 3-acre tract bounded by Worth St., Park Row and new street connecting Baxter and Pearl Sts. $5,425,000. Approved by Bd. Estimate and State Loan approved. CD 1/5/45.

▲ **N. Y., New York**—HOSPITAL REPLACEMENT FACILITIES—Dpt. P. Wks., The Governor Alfred E. Smith State Office Bldg., Albany, continuation of replacement existing facilities, Manhattan State Hospital on Wards Island for Dpt. Mental Hygiene. $10,000,000.

▲ **N. Y., Ogdensburg**—BUILDING MODERNIZATION—Dpt. P. Wks., The Governor Alfred E. Smith State Office Bldg., Albany, modernization of Bldgs. Nos. 15B, 15C, 15D, 15E, 15F, 16G, 15H and 15I, St. Lawrence State Hospital, for Dpt. Mental Hygiene. $1,200,000.

▲ **N. Y., Orchard Park**—SCHOOL—Central School Dist. 1, Town of Orchard Park, Aurora, Hamburg, Elma, West Seneca and Boston, Central Office, Lincoln Ave., plans by Paul E. Harbach, Harbach & Swain, 70 Niagara St., Buffalo, elementary School, $1,280,000.

▲ **N. Y., Poughkeepsie**—BUILDING MODERNIZATION—Dpt. P. Wks., The Governor Alfred E. Smith State Office Bldg., Albany, modernizing Bldgs. 1 and 2, Hudson River State Hospital for Dpt. Mental Hygiene. $1,000,000.

▲ **N. Y., Rochester**—BUILDING MODERNIZATION, etc.—Dpt. P. Wks., The Governor Alfred E. Smith State Office Bldg., Albany, modernization of Bldg. No. 6B, $850,000; storehouse, cold storage and bakery bldg., $1,450,000 at Rochester State Hospital, for Dpt. Mental Hygiene. CD 5/3/45.

▲ **N. Y., Rome**—BUILDING MODERNIZATION, etc.—Dpt. P. Wks., The Governor Alfred E. Smith State Office Bldg., Albany, modernization Bldgs. Nos. 6, 7, and 9, $960,000; building for 150-tuberculosis patients, $1,300,000, at Rome State School, for Dpt. Mental Hygiene. CD 3/28/45.

▲ **N. Y., Rome**—ASSEMBLY HALL—Dpt. P. Wks., The Governor Alfred E. Smith State Office Bldg., Albany, assembly hall, Rome State School, for Dpt. Mental Hygiene, $1,800,000. CD 8/7/46.

N. Y., Sonyea—BUILDING MODERNIZATION—Dpt. P. Wks., The Governor Alfred E. Smith State Office Bldg., Albany, madernizing Bldgs. Nos. 43, 44, 45, 46, 47, 48, 50, 63 and 64, Craig Colony, for Dpt. Mental Hygiene. $600,000.

▲ **N. Y., Tonawanda**—HIGH SCHOOL—City, 33 South Niagara St., plans by Roswell E. Pfohl-Pfohl & Martin, 187 Niagara St., Buffalo, Senior High School, Hinds, Fletcher and Adams Sts., $2,687,600; remodel central school, $402,800; two elementary schools, $427,000 and $415,000 respectively. CD 9/28/45.

N. Y., Utica — BUILDING MODERNIZATION — Dpt. P. Wks., The Governor Alfred E. Smith State Office Bldg., Albany, modernization of Bldgs. Nos. 3 and 36, Utica State Hospital for Dpt. Mental Hygiene. $550,000.

▲ **N. Y., Willard**—BUILDING MODERNIZATION—Dpt. P. Wks., The Governor Alfred E .Smith State Office Bldg., Albany, modernizing Bldgs. No. 15 and 44, Willard State Hospital, for Dpt. Mental Hygiene. $1,000,000.

▲ **N. Y., Willard**—POWER PLANT—Dpt. P. Wks., The Governor Alfred E. Smith State Office Bldg., Albany, power plant, Willard State Hospital, for Dpt. Mental Hygiene. $3,000,000. CD 2/28/47.

▲ **N. Y., Willowbrook**—PATIENTS—Dpt. P. Wks., The Governor Alfred E. Smith State Office Bldg., Albany, bldg. for 150 tuberculosis patients, Willowbrook State School, for Dpt. Mental Hygiene. $1,300,000.

▲ **N. C., Greensboro**—SCHOOLS — Guilford Co. Bd. Educ., Dr. E. H. Ellinwood, supt., Greensboro, voted bonds Mar. 8, schools, $6,000,000.

▲ **N. C., Washington**—HOSPITAL—Beaufort Co. Comn., Washington, 100-bed hospital. $1,200,000.

▲ **O., Garfield Heights**—SCHOOLS—City, 5551 Turney Rd., voted bonds Mar. 15, constr., reconstr. and equipping schools. $1,500,000. CD 3/10.

▲ **Pa., Dimock**—SCHOOLS—Elks Lake Joint School Bd., Dimock, plans by Emerson Willson, 610 Glenburn Rd., Clarks Summit, high school, $1,000,000; elementary school, $900,000.

▲ **Pa., Doylestown**—HIGH SCHOOL—Central Bucks Joint School Bd., Doylestown, plans by Micklewright & Mountford, 72 Ewing St., Trenton, N. J., Junior High School, W. Court St. $1,000,000. CD 11/24.

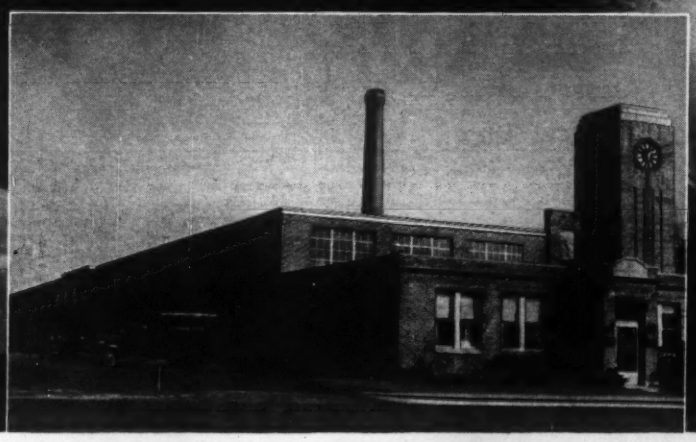
Pa., Midland—GYMNASIUM—School Dist. of Midland, Midland, plans by Robert F. Beatty, East Liverpool, O. 1 story, 140-140 ft. brick, tile gymnasium, Lincoln High School. $500,000.

▲† **Pa., Phila.**—MINT—General Services Admin., 250 Hudson St., New York, N. Y., U. S. Mint Bldg. alterations, $1,600,000. CD 11/21/45.

R. I., Providence—SCHOOL—State, F. A. Adams, purch. agt., State House, plans by Joseph A. Mosher &

(Continued on page 94)

Can you guess which metalworking plant caught fire in a flash?



They both did! The plant going up in smoke had a flash fire, which quickly enveloped the entire building. 35 persons were killed; property damage estimated at $342,000.

But a flash fire also occurred at the Spencer Thermostat Division of Metals & Controls Corporation in Attleboro, Mass. Only this fire was promptly put out by a Grinnell Sprinkler System. Production wasn't even interrupted.

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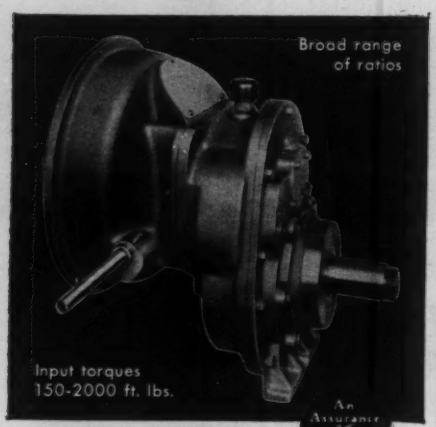

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(Continued from page 92)

Son, Inc., archt.-consult. engr., 77 Washington St Boston, Mass. vocational school. $500,000.

Tenn., Tullahoma—HIGH SCHOOL—City, Tullahoma, plans by Rice, Harwood ½ Clark, American Trus Bldg., Nashville, steel, brick, timber, concrete, high school. $930,000.

▲ Va., Charlottesville—HOSPITAL, etc.—University o Virginia, Colgate W. Darden, pres., Charlottesville, hospital and related equipment, $5,000,000; life science bldg., $1,500,000; studen. activities bldg $2,500,000; engineering school expansion, $646,000 CD 10/11/44.

Va., Farmville—DORMITORY—Longwood College, Dr Lancaster, pres., Farmville, dormitory. $700,000.

▲ Va., Fincastle—HIGH SCHOOL—Botetourt County School Bd., H. M. Painter, supt., Fincastle, plans by Hayes, Seay, Mattern & Mattern, 1615 Franklin Rd., Roanoke, Consolidated Central High School $1,000,000. CD 5/21/53.

▲† Va., Fort Belvoir—HOUSING—U. S. Eng., 1st and Douglas Sts., N.W., Wash. D. C., plans by E. Tucker Carleton, 206 E. Cary St., Richmond, 300-family unit, military housing, $3,400,000. CD 8/6/54.

Va., Gate City—HIGH SCHOOL—Scott County School Bd., Gate City, plans by Hayes, Seay, Mattern & Mattern, 1615 M Franklin Rd. S.W., Roanoke, high school. $775,000.

▲ Va., Staunton—VOCATIONAL, etc.—Virginia School for Deaf & Blind, Staunton, vocational training bldg., $900,000; classroom bldg., $335,000; 50-bed infirmary $350,000.

▲ Wash., Bellevue—SCHOOLS—Bellevue School Dist., Bellevue, voted $1,350,000 bonds, schools and school addns.

Wash., Edmonds—SCHOOL—School District No. 15, Edmonds, voted bonds, high school, at Holmers Corner, $500,000. CD 1/26.

Wash., Poulsbo—SCHOOL—North Kitsap School Dist. 400, Poulsbo, voted bonds, high school $650,000. CD 1/20.

▲ Wash., Sedro-Wooley—SCHOOLS—School Bd., Sedro-Wooley, voted bonds Mar. 8, Junior High School, $800,000; Senior High School addns. $500,000. CD 2/7.

▲ Wash., Tacoma—SCHOOLS—School District No. 10, 601 S. 10 St., bond election May 10, South End Junior High School adjacent to Harmon playfield S 83 and J Sts., $800,000, R. B. Price & M. W. Perrow, 2906 A St., archt., CD 9/23; bond election May 10, vocational school addn. $635,000.

▲ Wis., Green Bay—CITY HALL—City, City Hall, bond election Apr. 5, city hall, $1,750,000. Foeller, Schober, Berners, Safford & Jahn, 310 Pine St., archts.

▲ Wyo., Thermopolis—SCHOOL—Bd. Educ., Hot Springs Co., Thermopolis, high school and gymnasium addn. $1,000,000. Trsler-McCall, 507 16 St., Cody consult. engr.-archt. CD 6/9.

▲ B. C., Esquimalt—NAVAL BASE—Defense Constr. Ltd., 56 Lyon St., Ottawa, Ont., plans by S. P. Birley, 611 Courtney St., Victoria, 600x200 ft. x25 ft. high, Naval Base addn., Naval Stores Depot, $2,000,000; Chief Petty Officers, Mess Hall, $400,000.

Ont., Galt.—SCHOOL—Galt Bd. Educ., 14 Water St. N., Galt, high school $900,000.

▲ Ont., Toronto—COLLEGE, etc.—Dpt. Educ. Parliament Bldgs., teachers college west end of city, $2,000,000; 3 story, school, Ryerson Institute grounds $500,000. CD 12/15/43.

Ont., Toronto—ART GALLERY—Ontario College of Art, Grange Park, Toronto, plans by Govan, Ferguson, Lindsay, Kaminker, Langley & Keenleyside, 515 Jarvis St., Toronto Art Gallery addn. $600,000.

COMMERCIAL BUILDINGS

Ala., Birmingham—LIBRARY—Howard College, 7725 2nd Ave. S., plans by Van Keuren, Davis & Co., 3004 7 Ave. S., 3 story, bsmnt., 50,000 sq. ft., concrete, steel brick, stone library, $500,000. CD 11/18/52.

Ariz., Phoenix—SUPERMARKET—J. Earl Garrett (Mayfair Markets) 4383 Bandani Blvd., Los Angeles, Calif. 30,000 sq. ft. supermarket. $700,000.

▲ Ariz., Phoenix—MEDICAL CENTER—William Hegel & David Murdock, 1617 W. Flower Circle, Phoenix, medical center, $1,000,000.

Calif., Culver City—DWELLINGS—Stone & Stone, 6025 Venice Blvd., Los Angeles, plans by J. Chernoff, 3060 11 Ave., Los Angeles, 85 frame, stucco dwellings, in Town and Country Estates. $750,000.

▲ Calif., Pomona—SHOPPING CENTER—Jack Singer, c/o H. W. Underhill, archt., 4313 Leimert Blvd., Los Angeles, 14 building shopping center, San Antonio and Cucamonga Aves. $2,000,000.

Calif., Riverside—APARTMENTS—Braemer Corp., 1150 S. Beverly Dr., Los Angeles, plans by Wm. F. Mellin, 671 "D" St., San Bernardino, fourteen 2 story frame, stucco apartments. $750,000.

▲ Calif., San Diego—OFFICE—Julius Levin & Assocs., 918 1 St. Ave., plans by George Lykos, Spreckles Bldg., 6 story, 60,000 sq. ft. office, "A" St. between 1 and 2 Sts. $1,000,000.

Calif., Torrance—DWELLINGS—Milton Kauffman Constr. Co., 2918 W. Compton Blvd., Gardena, 610 frame, stucco dwellings, $600,000.

▲ D. C., Wash.—AVIATION CENTER—National Aeronautic Assn. of U.S.A., 1025 Conn. Ave. N.W., plans by Pereira & Luckman, 9220 Sunset Blvd., Los Angeles, Calif., aviation center. $2,500,000.

▲ Fla., Miami—HOMES—Seymour Pivar, Michael Field & Nat Teller, 3621 S.W. 20 St., 80 homes in N.W. Sixth Court at 187 St. section to be known as Miami Modern Manors. $1,050,000.

▲ **Ill., Chicago**—DEPARTMENT STORE—Carson Pirie Scott & Co., 1 S. State St., plans by Holabird & Root & Burgee, 180 N. Wabash St., Zone 1, department store 2 units (1) on State St. between Madison and Monroe Sts. (2) on Wabash St. between Madison and Monroe Sts. $5,000,000.

▲ **Ind., Fort Wayne**—SHOPPING CENTER—Northcrest Shopping Center, Inc., c/o Ralph L. Shirmeyer, Inc., 120½ E. Washington St., 40-store shopping center, fronting S.R. 324 and S.R. 427, $2,000,000.

▲ **Ind., Indianapolis** — SHOPPING CENTER — Theatair Realty Corp., Southeastern Ave. and Pleasant Run Blvd., shopping center for 13-stores. $1,250,000.

▲ **Mass., Boston**—PAULIST CENTER—Paulist Fathers, 5 Park St., plans by Maginnis & Walsh & Kennedy, 126 Newbury St., Paulist Center, Father Gillis Catholic Center, Park St. $1,000,000.

Mass., Plainville—RESIDENTIAL DEVELOPMENT—Ralph Hall & Richard Houghton, Bridgewood Dr., North Attleboro, residential development, 60 houses. $700,000. John Grimaldi, Chestnut St., North Attleboro, designer.

▲ **Mich., Detroit**—BANK—National Bank of Detroit, 600 Woodward Ave., plans by Albert Kahn Associated Architects & Engineers, Inc., 345 New Center Bldg., 12 story, 350,000 sq. ft. L-shaped bank, Griswold and Fort Sts. $10,000,000.

▲ **Mo., Affton (St. Louis 23 P.O.)**—SCHOOL—Lutheran Assn. for Higher Education, John Fleischli, chn., c/o Lutheran High School, 455 Lake Ave., St. Louis, Zone 12, plans by Wm. B. Ittner, Inc., 408 Bd. Educ. Bldg., 911 Locust St., St. Louis, Zone 1, brick, rein.-con., steel high school, Tesson Ferry Rd. south of Gravois Rd. $1,000,000.

Mo., Lemay (St. Louis 23 P.O.)—HIGH SCHOOL—School Sisters of Notre Dame, 320 E. Ripa Ave., Zone 23, plans by A. F. & Arthur Stauder, 3608 S. Grand Blvd., St. Louis, Zone 18, 2 story, ground floor, brick, rein.-con., steel high school for girls, Ripa Ave. east of Broadway. $550,000.

▲ **Mo., Normandy (St. Louis 21 P.O.)**—SCHOOL—Lutheran Assn. for Higher Education, John Fleischli, chn., c/o Lutheran High School, 455 Lake Ave., St. Louis, Zone 12, plans by Kenneth E. Wischmeyer, Bd. Educ. Bldg., 911 Locust St., St. Louis, Zone 1, brick, rein.-con., steel high school, Lucas and Hunt Rd. between Lucas and Hunt Village and Norwood Country Club in Normandy Area. $1,000,000.

Mo., St. Charles—SCHOOL—Interparish Catholic High School, c/o Msgr. A. T. Strauss, pastor St. Peter's Parish and Rev. James V. Fallon S.J., pastor St. Charles Borromeo Parish, 324 S. 3 St., plans by A. F. & Arthur Stauder, 3608 S. Grand Blvd., St. Louis, Zone 18, 1 story campus-type brick, rein.-con., steel high school on 41 acre tract on Elm Park Rd. west of city limits. $600,000. CD 10/21/53.

Mo., St. Louis County—STORE—Central Hardware Co., brick, rein.-con., steel store, Big Bend and Lindbergh Dr. $500,000.

▲ **Nev., Las Vegas**—HOTEL—John D. Slawter, Roy Girogi, Los Altos, Calif. and Robert Bigelow, 135 S. 4th St., Las Vegas, Madi Gras Hotel, 550 ft. south of Flamingo Rd. on east side of Hy. 91. $6,000,000.

▲ **N. J., Newark**—OFFICE—Mutual Benefit Life Insurance Co., 300 Broadway, plans by Eggers & Higgins, 100 E. 42 St., New York 17, N. Y., and Frank Grad & Sons, 11 Commerce St., Newark, 7 story office (Blue Cross—Lessee), Broad and Bridge Sts. $1,500,000.

N. Y., Brooklyn—APARTMENT—Ocean 7 Inc., 17 Neptune Ave., plans by Morris Rothstein & Son, 186 Joralemon St., Zone 2, 6 story apartment, 817-829 Ocean Parkway and 916-32 E. 7 St. $960,000.

N. Y., Brooklyn—APARTMENT—Shore Gardens, Inc., 26 Court St., Zone 2, plans by Julius Fishkind, 161-19 Jamaica Ave., Jamaica, 6 story apartment, 2840-2874 Shore Parkway. $850,000.

N. Y., Jamaica—APARTMENT—Kalikow Constr. Corp., c/o Morris Rothstein & Son, archts., 186 Joralemon St., Brooklyn, Zone 2, 6 story apartment, 84 and Lander Sts. $632,000.

▲ **N. Y., New York**—APARTMENT—Peter Doelger, Inc., 407 E. 55 St., Zone 22, plans by H. I. Feldman, 415 Lexington Ave., Zone 17, 17 story apartment, 1392-1396 Second Ave. and 301-5 E. 72 St. $1,300,000.

N. Y., Rego Park—CONVENT—Roman Catholic Church of the Resurrection & Ascension, c/o Coffin, Coffin & Keating, archts., 125 E. 46 St., New York, Zone 17, 3 story convent, 61 Rd., east of 85 St. $500,000.

▲ **O., Steubenville** — HOSPITAL — Catholic Diocese of Steubenville, 422 Washington St., 100-bed St. John Hospital, to be operated by Sisters of St. Francis. $2,000,000.

▲ **O., West Carrollton**—HOUSING—Krest Builders, Inc., James L. Schwindeman, pres., 71 Marchester Dr., Dayton, 80 to 100 homes. $1,250,000.

▲ **Pa., Phila.**—APARTMENT—Owner, c/o Samuel H. Landy, 1415 Walnut St., plans by Samuel I. Oshiru, 1704 Walnut St., apartment, School House Lane and Fox St. $5,000,000.

R. I., Providence—DORMITORY—Brown University, Prospect St., 300-man dormitory. $500,000.

▲ **Tex., Amarillo**—SHOPPING CENTER—M. T. Johnson, Jr., Fisk M & P Bldg., 1 story, masonry regional shopping center, 58-acre tract off 3700 Plains Blvd. $2,500,000.

Tex., Fort Worth—DWELLINGS—Wedgewood Land Co., Box 11131, plans by Horton & Wright, Box 11131, 44 brick veneer dwellings. $572,000.

▲ **Tex., Houston**—SHOPPING CENTER—Paul F. Barnhart, Commerce Bldg., plans by Irving R. Klein & Assocs., 1317 Austin St., 140,000 sq. ft. shopping center, $1,750,000; 2 and 3 story commercial addn.

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▲ **Tex., Houston**—COMMERCIAL—A. S. Knapp & Assocs., 1020 Holcombe Blvd., multi-story commercial bldg., Main and Holcombe Sts. $1,000,000.

▲ **Tex. Houston**—DORMITORIES—Rice Institute, 6100 Main St., plans by Lloyd & Morgan, 4605 Montrose St., womens dormitory, $1,000,000; plans by Wilson, Morris & Crain, 3330 Graustark St., mens dormitory, $1,000,000. CD 2/10.

▲ **Tex., Longview**—OFFICE—Earl Hollingsworth, 7814 Detroit St., Houston, plans by Wilson, Morris & Crain, 3330 Graustark St., Houston, 10 story, bsmnt., brick office, 3 electric passenger elevators, concrete fdn. $1,500,000. Walter P. Moore, 2 Pinedale St., and Hollis U. Bible, 500 Stuart St., Houston, consult. engrs.

▲ **Va., Harrisonburg**—DORMITORIES—Madison College, G. Tyler Miller, pres., Harrisonburg, 2 dormitories, $675,000 each.

▲ **Wash., Vancouver**—STORE—Lane Development Co., c/o Wolff & Zimmer, Pearson-4th Ave. Bldg., Portland, Ore., 3 story, bsmnt., rein.-con. department store for lease to J. C. Penney Co. $1,000,000.

Alta., Edmonton—SEMINARY—St. Joseph's Seminary, Edmonton, plans by Blais & English, 9642 Jasper Ave., 2 story, bsmnt., masonry seminary, St. Alberta Trail, about 3 mi. north of here. $750,000.

▲ **Ont., London**—OFFICE—Two Hundred Queens Ltd., 116 Dundas St., plans by Watt & Tillman, 343 Richmond St., 7 story, bsmnt., 125x123 ft., steel, glass, Indiana limestone, office, air-conditioning. $2,000,000. CD 1/31.

▲ **Ont., Oshawa**—HOUSING PROGRAM—G. A. Stewart, 3451 Yonge St., Toronto, plans by Venchiarutti & Venchiarutti, 2941 Bathurst St., Toronto, housing program on 70-acre site at Stevenson Rd. and No .2 Highway, $5,000,000.

Ont., Toronto—APARTMENT—Empire Constr. Co. Ltd., c/o L. Shankman., 129 Ava Rd., plans by E. I. Richmond, 455 Spadina Ave., 63-suite, 3 story, bsmnt., rein.-con., brick, steel apartment, 25 Bedford Rd. $504,000.

▲ **Ont., Toronto**—MEDICAL ARTS—Tower Investments Ltd., 1437 Yonge St., plans by Gordon S. Adamson & Assocs., 52 S. Clair Ave. E. 15 story medical arts bldg., with clinic hospital on top 3 floors, Bay and College Sts., $7,000,000.

▲ **Que., Montreal**—APARTMENTS—Federal Constr. Co. Ltd., 4715 Queen Mary Rd., plans by Charles Greinier, 170 Geneva Crescent, Mount Royal, 6 story, bsmnt., 51-suite, rein.-con., brick, stone apartment, Fort St. between St. Catherin St. W. and St. Luke St., $450,000; 8 story, bsmnt., concrete, brick, stone apartment, Tower St. at St. Catherine St. W., $600,000. Henry Jasen & B. A. Eskenazi, 1410 Guy St., Montreal, consult. engrs.; four 3 story, no basmnt., wood, brick, apartment blocks, Upper Lachine Rd. and Harvard Ave. $400,000.

▲ **Que., Quebec City**—HOSPITAL PAVILIONS—Hospital de l'Enfant Jesus, 1401 18 St., Quebec City, plans by Mme R. Chenevert, 170 Pie XI Blvd., hospital pavilions. $2,000,000. CD 12/16.

▲ **Que., Ste. Genevieve de Pierrefonds**—HOUSING—St. Charles Heights Development Co., 1205 Aldred Bldg., Montreal, plans by David G. Woods, 4115 Sherbrooke St. W., Montreal, 250 homes in housing development. $2,750,000.

INDUSTRIAL BUILDINGS

Ariz., Phoenix—PLANT—Shamrock Dairy, Inc., Rauthrauff Rd., Tucson, plans by Weaver & Drover, 128 E. Camelback Rd., 20,000 sq. ft. dairy processing sales and distr. plant. $500,000.

▲ **Ark., North Little Rock**—WAREHOUSE—The Kroger Co., 1240 State St., Cincinnati, O., warehouse and possible retail outlet. $1,500,000.

D. C., Wash.—WAREHOUSE, etc.—Upjohn Co., 301 Henrietta St., Kalamazoo, Mich., branch warehouse and office, Kansas Ave. and Chillum Pl. N.W. $700,000.

▲ **Ky., Ashland**—MILL—Armco Steel Corp., 1939 Armco Ave., Middletown, O., second reversing cold mill, strip normalizing and pickling line, sintering plant, shipping terminal on Ohio River and plant addns. $15,000,000.

▲ **La., New Orleans**—PLANT—National Gypsum Co., 325 Delaware Ave., Buffalo 2, N. Y., 100,000 sq. ft. wallboard and plaster plant, $6,000,000.

▲ **Mass., West Springfield**—FOOD TERMINAL—Century Industrial Development Co., 1200 Main St., Springfield, wholesale food terminal, $3,000,000.

Mich., Detroit — PLANT—Chrysler Corp., 341 Massachusetts Ave., Zone 3, plans by Albert Kahn Associated Architects & Engineers, Inc., 345 New Center Bldg., 160x180 ft. Plymouth body plant, Mack and Connor Sts. $825,000.

▲ **Mich., Detroit**—PLANT—Chrysler Corp., J. C. Zeder, vice pres., charge of Engineering, 12800 Oakland St., Zone 3, plans by Albert Kahn Associated Architects & Engineers, Inc., 345 New Center Bldg., engineering plant, 3 story addn. for body designing-styling, dynamometer laboratories addn., Highland Park Plant. $10,000,000.

▲ **Mich., Detroit** — PLANT — Thompson Products, Inc., 23555 Euclid Ave., Cleveland, O., plans by Smith-Hinchman & Grylls, Inc., engrs.-archts., 800 Marquette Bldg., Detroit, chassis parts plant, air-conditioned, Sterling Twp., $6,000,000. CD 3/17/53.

▲ **Mich., Mount Clemens**—TESTING FACILITIES—Ford Motor Co., 3000 Schaefer St., Dearborn, testing facilities on 4,000 acre testing and proving grounds, incl. Five Mile high speed oval track, durability hill tests, 2.5 mi. straightway east-west track, headquarters, maintenance and garage bldgs., access road, storage bldg., cafeteria, north-south straightway, Dewey, Hipp, DeQuindre and Mack Rds. $1,500,000.

▲ **O., Akron**—PARKING—City, City Hall, parking, multi-level parking bldg., Quaker St. $2,000,000. Beiswanger & Hoch, 661 W. Market St., consult. engrs.

▲ **O., Middletown**—OPEN HEARTH FURNACES—Armco Steel Corp. 1939 Armco Ave., two open hearth furnaces. $18,000,000.

▲ **Pa., Butler**—MILL—Armco Steel Corp., 1939 Armco Ave., Middletown, O. fifty-six in. hot strip mill, annealing and pickling line, widening present slabbing mill and relocating wheel works. $25,000,000.

▲ **Tex., Houston**—WAREHOUSE, etc.—Sears Roebuck & Co., 4207 Main St., plans by Cowell & Neuhaus, 2303 LaBranch St., 300,000 sq. ft. masonry warehouse, $3,250,000; 1 story, 15,000 sq. ft. masonry truck service shop bldg., $150,000. B. Johnson & Assocs., 4926 Travis St., and F. J. Niven, 3908 Main St., consult. engrs. CD 1/29/54.

Tex., Waxahachie—WAREHOUSE—Owners, c/o Walter Kidde, Inc., engr., Box 8084, Houston, 65,000 sq. ft. steel frame warehouse. $700,000.

▲ **Va., Richmond**—WAREHOUSE, etc.—Virginia Electric & Power Co., 7th and Franklin Sts., storage warehouse and repair shops. $1,000,000.

▲ **Wash., Cosmopolis**—MILL—Weyerhaeuser Timber Co., Tacoma Bldg., Tacoma, pulp mill, $1,000,000.

Ont., Arnprior—PLANT—Charles Pfizer & Co., 630 Flushing Ave., Brooklyn, N. Y., U. S. A. factory and packaging plant, $750,000. C. V. Reischelt, Charles Pfizer & Co. Inc., 11 Barrett St., Brooklyn, N. Y., U. S. A., consult. engr.

UNCLASSIFIED

▲ **Calif., Los Angeles**—ZOOLOGICAL GARDENS, etc.—City, City Hall, $35,500,000 bond election May 31, zoological gardens, new zoo, parks, bleachers, playgrounds, swimming pools and aquarium. CD 1/15/45.

▲ **Calif., Los Angeles**—BASEBALL STADIUM—City, City Hall, $4,500,000 bond election May 31, baseball stadium

Kentucky—RURAL DISTRIBUTION LINES—Henderson-Union Rural Electric Co-operatvie Corp., Henderson, 200 mi. rural distr. lines, sub-headquarters facilities and sys. imprvs., Henderson and Union Counties. $500,000. CD 8/23/48.

▲† **Maine**—AAA FACILITIES—U. S. Eng., 857 Commonwealth Ave., Boston, Mass., special AAA facilities, Limestone, Caswell, Connor and Caribou, $1,300,000.

▲ **Mass., Boston** — AQUARIUM — Museum of Science, Science Park, aquarium in Science Park, $1,000,000.

Missouri — RURAL DISTRIBUTION LINES — New-Mac Electric Co-operative, Inc., Neosho, 50 mi. rural distr. lines, sys. imprvs., Newton Co. $555,000. CD 11/13/50.

▲ **N. Y., New York**—SUBWAY STATION PLATFORM—New York City Transit Auth., 370 Jay St., Brooklyn, Zone 1, T-5E, lower level platform at Grand Central Station of Lexington Ave. IRT Line. Plans are tied to prospective Commercial building at Grand Central, Total est $27,000,000. Parsons, Brinckerhoff, Hall & Macdonald, 51 Broadway, Zone 6, consult. engrs. CD 3/2/44.

▲ **N. Y., New York**—SUBWAY STATION REMODELING—New York City Transit Auth., 370 Jay St., Brooklyn, Zone 1, T-5G, remodeling IRT-Columbus Circle Station as an express stop. $5,000,000. Edwards, Kelcey & Beck, 3 Williams St., New York, consult. engrs. CD 3/2/44.

▲ **N. Y., New York**—SUBWAY CONVERSION STATION—New York City Transit Auth., 370 Jay St., Brooklyn Zone 1, T-5F, converting existing IRT station at 59th St. and Lexington Ave. to express station. $5,500,000. DeLeuw, Cather & Brill, 202 E. 42 St., consult. engrs. CD 3/2/44.

▲ **N. Y., New York**—TUNNEL—New York City Transit Auth., 370 Jay St., Brooklyn, Zone 1, two track tunnel under present IND 6th Ave. line from West 4 to West 34 Sts. $13,000,000. Seelye, Stevenson, Value & Knecht, 101 Park Ave., Zone 17, consult. engrs.

▲ **Pennsylvania, New Jersey, New York and Connecticut**—GAS LINE—Tennessee Gas Transmission Co., Commerce Bldg., Houston, Tex., 248 mi. 24 in. gas line from Hebron, Pa. across Northern New Jersey, under Hudson River, through New York to Greenwich, Conn. $28,700,000. CD 6/6/50, under Texas and New York.

Tex., Fort Worth—APRONS, etc.—Consolidated-Vultee Aircraft Corp., Grants Lane, repair existing concrete aprons, break out existing 6 in. concrete and replace with 14 in. concrete, $600,000; re-work existing asph. parking lots and use concrete base, $150,000. F. C. Clayton, plant engr. CD 2/13/52, under Industrial Buildings.

Virginia — POWER TRANSMISSION LINES — Virginia Electric & Power Co., 7th and Franklin Sts., Richmond, power transmission lines between Kerr Dam near Clarksville and Pamplin City. $800,000.

Va., Chesterfield—DUST COLLECTION SYS.—Virginia Electric & Power Co., 7th and Franklin Sts., Richmond, dust collection sys. for Chesterfield Power Station near Dutch Gap, Va., Rte. 1, 10 mi. south of Richmond. $750,000.

Wash., Enumclaw—GAS DISTRIBUTION SYSTEM—City, City Hall, voted bonds, natural gas distr. sys. $750,000. CD 1/21.

Faster Cycle Time and more Pay Yards!

Load Easier— Haul Faster

On short hauls as well as long ones—and in all types of material—"Euc" Scrapers move more pay yards per hour because they are easy loading and maintain fast cycle time. They have the power and traction needed for fast loading, high travel speed and for working on steep grades with full payload.

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Drives average 5 trips per hour on a 3000 ft. one way haul for Tecon Corp. of Dallas, Texas. On another section of this 750,000 yd. runway grading job, the fast cycle time of the Euclid 15.5 cu. yd. Scrapers enabled them to move 265 yds. each per hour on a 2000 ft. haul.

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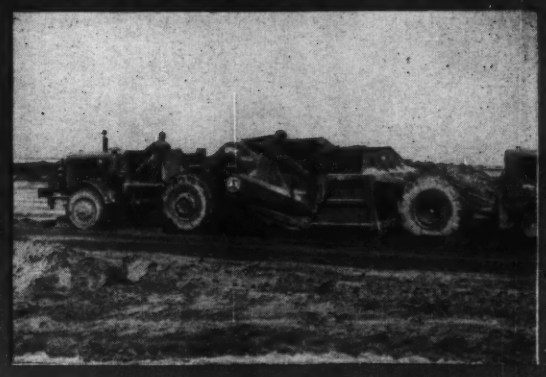

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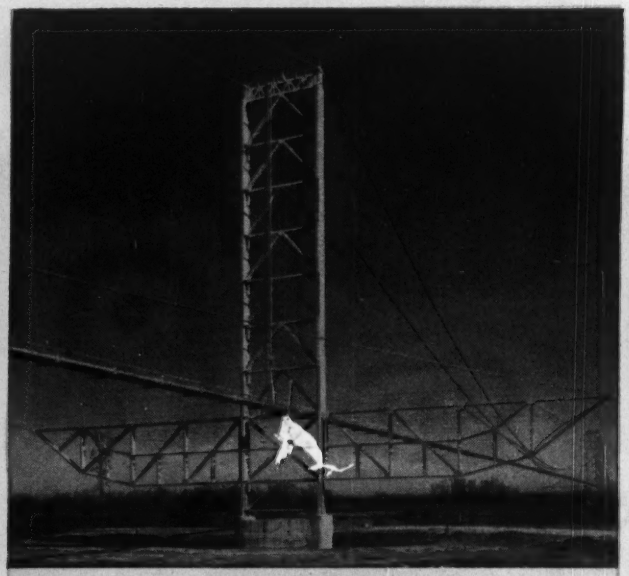
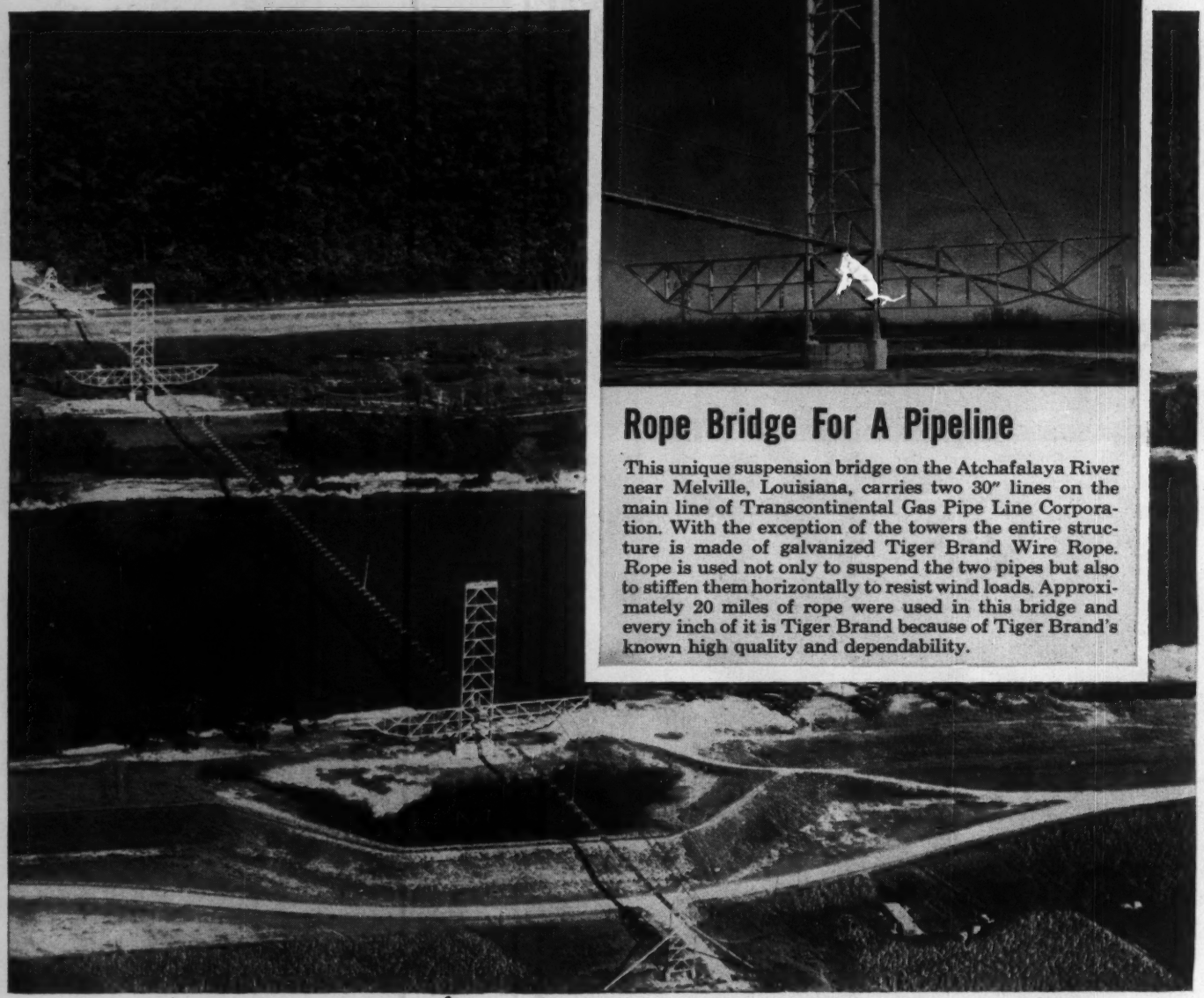


Rope Bridge For A Pipeline

This unique suspension bridge on the Atchafalaya River near Melville, Louisiana, carries two 30″ lines on the main line of Transcontinental Gas Pipe Line Corporation. With the exception of the towers the entire structure is made of galvanized Tiger Brand Wire Rope. Rope is used not only to suspend the two pipes but also to stiffen them horizontally to resist wind loads. Approximately 20 miles of rope were used in this bridge and every inch of it is Tiger Brand because of Tiger Brand's known high quality and dependability.



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Hundreds of combinations of strengths, sizes, constructions, lays, and steels are available in the complete line of Tiger Brand Wire Ropes. As a result, you can get a Tiger Brand Rope to suit every lifting job you will ever encounter—and you can depend on its performance. Tiger Brand has proved in actual service that it lasts long. Get in touch with your local Tiger Brand Distributor next time you need dependable wire rope.

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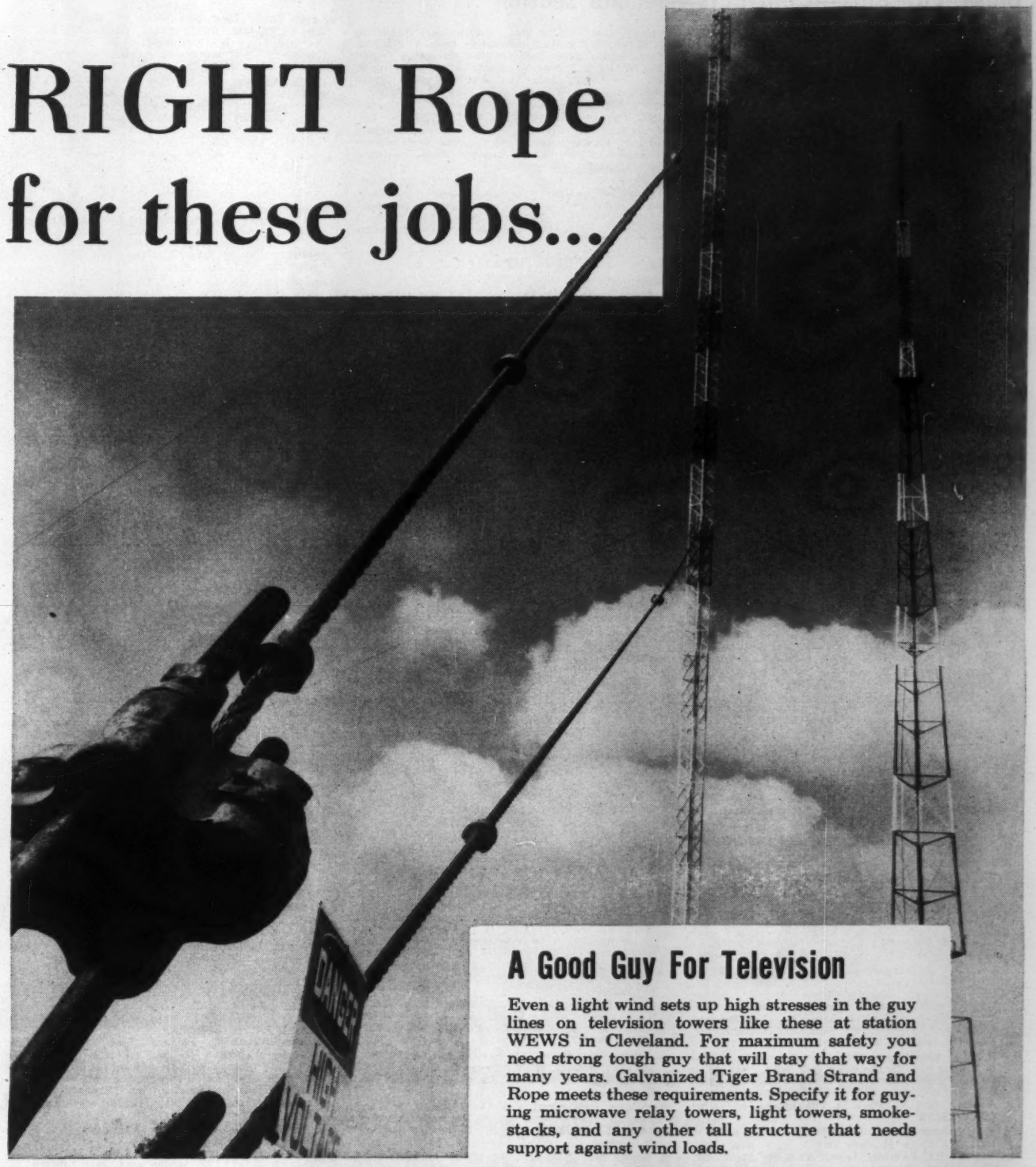

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Even a light wind sets up high stresses in the guy lines on television towers like these at station WEWS in Cleveland. For maximum safety you need strong tough guy that will stay that way for many years. Galvanized Tiger Brand Strand and Rope meets these requirements. Specify it for guying microwave relay towers, light towers, smokestacks, and any other tall structure that needs support against wind loads.

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Bids—Low Bids—Contracts—Second Section

NEW ENGLAND

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
April 5, Massachusetts
STREETS AND ROADS
April 5, 7 Massachusetts April 7 New Hampshire

▲† Connecticut—AAA FACILITIES—BA 4/5—U. S. Engr., 857 Commonwealth Ave., Boston, Mass., Special AAA Facilities Bridgeport Area (Fairfield). $9,00,000-$1,000,000. Plans deposit $50, refundable. Leon Chatelain, Jr., 1632 K St. N.W., Wash., D. C., and Spector & Montgomery, Falls Church, Va., archts. Fay, Spofford & Thorndike, 11 Beacon St., Boston, Mass., engrs. CD 12/22.

† Me., Bangor—ENGINE BUILD-UP BLDG., etc.—BA 4/5—U. S. Eng., 857 Commonwealth Ave., Boston, Mass., engine build-up bldg. and armament and electronic shops, Dow Air Force Base, ENG-19-016-55-104. $750,000-$850,000. Plans deposit $10, refundable. Ganteaume & McMullen, 99 Chauncy St., Boston, Mass., engrs.

▲† Mass., Boston—PIER—BA 5/3—First Naval Dist., 495 Summer St., Boston, replacement of Pier No. 11 Naval Shipyard, Charlestown, NOY 85204, Spec. 53308. $1,000,000. Plans deposit $80. Hayden, Harding, Buchanan, 31 St. James Ave., Boston, engrs. CD 9/21.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ MASSACHUSETTS—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston,
Peter Salvucci & Sons, Inc., 55 Pond St., Waltham, Mass. LB $1,030,081. hy. constr., Cummington. Bids Mar. 22. CD 3/9.

▲ CONNECTICUT—State Hy. Comn., State Office Bldg., Hartford,
Savin Constr. Corp., 11 Village St., East Hartford, Conn., LB, $1,272,470, substructure for State St. Bridge over Connecticut River, Hartford and East Hartford. Bids Mar. 21. CD 2/23.

BUILDINGS

LOW BIDS AND CONTRACTS

Brown Constr. Co., 562 Congress St., Portland, Me. CA $539,000, est. $475,000. HIGH SCHOOL addn., Central Ave., LEWISTON, ME. City, Bd. Finance, City Bldg., Lewiston, Me. CD 2/23, under LB.

▲ Carroll-Verge & Whipple, Inc., 370 Wahconah St., Pittsfield, Mass. LB $1,226,275. regional high SCHOOL, AMHERST, MASS. Towns of Amherst and Pelham, Amherst-Pelham Regional Dist. School Comn., Town Hall, Amherst, Mass. Bids Mar. 22. CD 2/28.

▲ Georgetown Sand & Gravel Co., James Seavey, pres., Georgetown, Mass. Separate Contracts. $1,800,000. RESIDENTIAL DEVELOPMENT, 150 HOUSES Elm St., 85 acre tract, GEORGETOWN, MASS.

▲ Wexler Constr. Co., Newton Highlands, Mass. LB $1,939,000. HIGH SCHOOL, HYANNIS, MASS. Town of Barnstable, 387 Main St., Hyannis, Mass. Bids Mar 18. CD 2/15.

MIDDLE ATLANTIC

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
April 6 Delaware
STREETS AND ROADS
April 6 Delaware April 12 New Jersey
April 14 New York April 14, 15 Pennsylvania

▲† N. J., Wrightstown—NATIONAL GUARD FACILITIES—BA 4/20—U. S. Eng., 2635 Abbottsford Rd., Phila., Pa. Air National Guard Facilities, hangar, storage facilities, shops, engineering, aviation bldg. etc., McGuire Air Force Base, No. 36-109-55-64. $3,000,000. Wigton-Abbott Corp., 1225 South Ave., Plainfield, engrs. CD 9/13/51.

† N. J., Wrightstown—DELUGE SYS.—BA 4/27—U. S. Eng., 2635 Abbottsford Rd., Phila., Pa., deluge sys. for maintenance hangar, McGuire Air Force Base, No. 36-109-55-63. $500,000. Whitman Requardt & Assocs., 1304 St. Paul St., Baltimore, Md., engrs. CD 9/13/51.

† N. J., Dover—MISC. FACILITIES—BA 5/4—U. S. Eng., 111 E. 16 St., New York 3, N. Y. misc. facilities, FY 53, Picatinny Arsenal $500,000-$1,000,000. CD 12/17.

† N. Y., Buffalo—WIND TUNNEL—BA 6/15—U. S. Eng., 111 E. 16 St., New York, Zone 3, mod. wind tunnel, FY 52 at Cornell Aero Lab. $500,000-$1,000,000. Extended date. Cornell Aeronautical Lab., Inc., 4455 Genesee St., Cheektowaga, archt. CD 3/21.

BIDS ASKED—BUILDINGS

Md., Baltimore—BANK—BA 4/5—Federal Reserve Bank of Richmond, Calvert and Lexington Sts., Zone 2, (selected list bidders) 4 floor bank addn. to present bldg. 40,000 sq. ft. floor space, concrete, steel, stone, brick. $500,000. Taylor & Fisher, 1012 N. Calvert St., Zone 2, archts. CD 5/17.

▲ N. Y., New York—HOSPITAL—BA 4/6—Dpt. P. Wks., Municipal Bldg., Zone 7, Contr. 1, general constr.; Contr. 2, plumbing; Contr. 3, heating and ventilating; Contr. 4, electrical work for constr. of new General Care Hospital Bldg., and reconstr. in existing bldgs., Harlem Hospital, Manhattan Boro. $7,000,000. Plans deposit $100. Extended date. Ferrenz & Taylor, 152 W. 42 St., Zone 36, archts. Edwards & Hjorth, 67 W. 44 St., Zone 36, structural engrs. Jaros, Baum & Bolles, 415 Lexington Ave. Zone 17, mech. engrs. CD 3/14.

▲ Md., Baltimore—HOSPITAL—BA 4/7—State, Dpt. P. Imprts., 506 Park Ave., Zone 1, masonry Montebello Chronic Disease Hospital, $1,750,000. Plans deposit $75. Hal Miller, 2118 Maryland Ave., Baltimore, Zone 18, archt. CD 8/27/52.

Md., Upper Marlboro—SCHOOL—BA 4/12—Dpt. Educ., Prince George's Co., John Hanson Junior High School, replacing proposed Sheriff Knoll's Junior High School, Seat Pleasant. $750,000. Plans deposit $50. Walton & Maddon, 3510 Rhode Island Ave., Mt. Rainer, archts. CD 11/25/53.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ Allis Chalmers Mfg. Co., 864 S. 70 St., Milwaukee, Wis., LB $1,326,565. furnishing, del. 86,000 KVA single phase power transformers, Spec. No. PA-4-14002, St. Lawrence Contr. No. P7, NEW YORK. Power Authority of the State of New York, 270 Broadway, New York 27, N. Y. Bids Mar. 22. CD 215.

† Keystone Eng. Corp. & Nager Electric Co., 1815 Callowhill St., Phila., Pa., LB $738,850. electric distr. sys. expansion and tunnel, Frankford Arsenal (First Phase) No. 36-109-55-48, PHILA., PA. U. S. Eng., 2635 Abbottsford Rd., Phila., Pa. Albert C. Wood Assoc., Inc., 1411 Walnut St., Phila. Pa., engr. CD 2/14.

BUILDINGS

LOW BIDS AND CONTRACTS

Vicbar Constr. Corp., 17 Neptune Ave., Brooklyn 29, N. Y. Owner Builds. $676,000, 26 HOUSES, 2nd unit, at 10-202-10422 Avenue L, BROOKLYN, N. Y. Morris Rothstein & Sons, 186 Joralemon St., Brooklyn 2, N. Y., archt.

▲ Paul Maynard Homes, c/o Long Island Homes, 168-12 Hillside Ave., Jamaica 32, N. Y. Owner Builds. $2,000,000. 106 HOUSES, tract at Main St. and Carmans Rd., FARMINGDALE, N. Y.

▲ Fragenot Builders, Inc., c/o Alwin Cassens, Jr., archt., 145 S. Franklin Ave., Valley Stream, N. Y. Owner Builds. $2,900,000. 162 HOUSES, Newbridge Rd., north of Old Country Rd., HICKSVILLE, N. Y.

▲ Copperfield at Huntington Homes, c/o Stanley H. Klein, archt., 89-31, 161 St., Jamaica, N. Y. Builds. $632,000, 6 story APARTMENT, 84 and Land Rd., north of Jericho Turnpike, HUNTINGTON, N. Y.

Kalikow Constr. Corp., c/o Morris Rothstein & Son, archts., 186 Joralemon St., Brooklyn 2, N. Y. Owner Builds. $632,000, 6 story APARTMENT, 84 and Lander Sts., JAMAICA, N. Y. CD 3/14.

▲ John W. Rouse Co., Gouvernor, N. Y., CA $1,353,946 general constr. 1 and 2 story Starpoint Central SCHOOL, Township of Pendleton, LOCKPORT, N. Y. Starpoint Central School Dist., Rte. 3 Lockport, N. Y. Awarded Mar. 18. CD 3/4, under LB.

▲ John A. Johnson & Sons, Inc., 303 41st St., Brooklyn 32, N. Y., LB $5,882,700 (A) LB $5,876,950, (B) general constr.;
Harry Starkman & Bros., 348 Brook Ave., New York 54, N. Y., LB $381,900, heating and ventilating;
Simpson Electric Corp., 71 E. 116 St., New York 29, N. Y., LB $450,800, electrical work;
J. L. Murphy, Inc. 340 E. 44 St., New York 17, N. Y LB $678,000, plumbing, for Washington HOUSES (Proj. No. NY-5-14) Sect. II, Incl. Bldgs. Nos. 7 to 14 (inclusive) in area bounded by E. 104 St., 2 Ave., E. 100 St., E. 99 St. and 3 Ave., Manhattan Boro, NEW YORK, N. Y. New York City Housing Auth., 299 Broadway, New York 7, N. Y. Bids Mar. 22. CD 3/1.

▲ Peter Doelger, Inc., 407 E. 55 St., New York 22, N. Y. Owner Builds. $1,300,000. 17 story APARTMENT, 1392-1396 Second Ave. and 301-5 E. 72 St. NEW YORK, N. Y. CD 3/16.

▲ Riviera Ridge Homes, c/o Herman York, archt., 90-04 161 St., Jamaica, N. Y. Owner Builds. $5,000,000. 1,500 HOUSES, tract on Rte. 25 A, SMITHTOWN, N. Y.

Washington Park Homes, c/o Alwin Cassens, Jr., archt. 145 S. Franklin Ave., Valley Stream, N. Y. Owner Builds. $700,000. 70 HOUSES, Washington Ave., north of Montauk Hy., WEST SAYVILLE, N. Y.

▲ Sidney Berg & Assocs., 70 Middle Neck Rd., Great Neck, L. I. Owner Builds $1,600,000, 82 HOUSES, on 55-acre tract on Silverside Ave. LITTLE SILVER, N. J.

▲ Stonehurst Manor Homes, c/o Leonard Feinen, archt., 320 Lincoln Ave., Hasbrouck Heights, N. J. Owner Builds, $8,000,000, 140 HOUSES, on 200-acre tract 4½ mi. from George Washington Bridges, TENAFLY, N. J.

▲ Foley-McManus, Township Line, Drexel Hill, Pa. Separate Contracts. $1,000,000. RESIDENTIAL DEVELOPMENT, Lancaster Ave., BRYN MAWR, PA.

Mason McDowell Corp., 8902 West Chester Pike, Kirklyn, Pa. Separate Contracts. $500,000. RESIDENTIAL DEVELOPMENT, 4 St. and Ellis Ave., COLWYN, PA.

▲ Brusca Bros., 5131 Cypress St., Pittsburgh, Pa., CA $1,472,000. 1 story, brick, block, steel JUNIOR HIGH SCHOOL addn., alteration, HOLLIDAYSBURG, PA. Hollisdaysburg Community High School Auth., Hollidaysburg, Pa. Bids Mar. 15. CD 3/22, under LB.

▲ Frost Constr. Corp., 200 DeKalb St., Norristown, Pa., LB $3,500,000. RESIDENTIAL DEVELOPMENT, W. Norriton Twp., JEFFERSONVILLE, PA. Richard Irwin, 200 DeKalb St., Norristown, Pa. Herman York, 90-04 161 St., Jamaica, N. Y., archt.

Nicholas LeDonne, 510 St. Clair St., Clairton, Pa., CA $630,000. 1 story, T-shaped brick, block Forbes Junior-Senior HIGH SCHOOL for the Forbes Joint School Dist., KANTNER, Pa. State Public School Bldg. Auth., 101 S. 25 St., Harrisburg, Pa. Bids Mar. 3. CD 3/8, under LB.

▲ Wark & Co., 1920 Sansom St., Phila., Pa., LB $1,269,000 general contract, RIVER HOME for INDIGENT, PHILA., PA. Dpt. Procurement, City Hall Annex, Phila., Pa. Bids Mar. 31. CD 3/8.

Roberts Constr. Co., 1 W. Lancaster Ave., Ardmore, Pa. LB $633,671. general contract, Wister Elementary SCHOOL, PHILA., PA. Bd. Educ., 21st. and Winter Sts., Phila. Pa. Harry Sternfield, 1411 Walnut St., Phila., Pa. archt. Robert E. McLaughlin, 1411 Walnut St., Phila. Pa., engr. Bids Mar. 18.

Wm. P. Lipscomb Co., Inc., Washington Bldg., Wash., D. C., LB $642,964, est. $550,000 3 story OFFICE, 15 St., Massachusetts Ave. and Scott Circle, WASH., D. C. American Association for Advancement of Science 1515 Massachusetts Ave. N. W., Wash., D. C. Bids Mar. 17. CD 3/4.

SOUTH

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
April 8 Alabama April 13 Louisiana
STREETS AND ROADS
April 6, 13 Louisiana April 8 Alabama, Kentucky

BIDS ASKED—BUILDINGS

▲† Ga., Fort Benning—HOSPITAL—BA About 6/1—U. S. Eng., 200 E. St. Julian St., Savannah, permanent-type hospital, Serial No. ENG-09-133-55-54. Plans deposit $100.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ Tidewater Constr. Corp., 538 Front St., Norfolk, Va. CA ore pier substructure;
Demag A. G., Duisburg, Germany, CA unloading equipment to be installed on the pier;
Wellman Eng. Co., 7000 Central St., Cleveland, O. CA install conveyor sys. for ore pier, NEWPORT NEWS, VA. Est. $8,000,000. The Chesapeake & Ohio Ry. Co., L. T. Nuckols, ch. engr., 823 E. Main St., Richmond 10, Va. Bids Mar. 1. CD 3/2.

† Jefferson Constr. Co., 3128 Coral Way, Miami, Fla. LB $625,880, est. $647,631. 1 story, 210x144 ft. each armanent and electronic shops, Homestead Air Force Base, ENG-08-123-55-65, HOMESTEAD, FLA. U. S. Eng., P. O. Box 4970, Jacksonville, Fla. Chappell & Brenneke, Burt Bldg., Dallas 1, Tex. archts.-engrs. Bids About Mar. 17. CD 2/9.

▲† Henry C. Beck Constr. Co., First Natl. Bank Bldg., Atlanta, Ga. LB, $2,161,582, helicopter hangar and shop bldg., Jacksonville Naval Air Station, JACKSONVILLE, FLA. Sixth Naval Dist., Charleston, S. C. Bids Mar. 17. CD 2/15.

▲ LOUISIANA—State Hy. Dpt., Highway Office Bldg., Baton Rouge,
R. P. Farnsworth & Co., Inc., 1515 S. Salcedo St., New Orleans, La. CA $1,873,265. interchange structures, c. conc. 0.217 mi. Carrollton-Airline Interchange-Stage I (Pontchartrain Expressway) State Rte. 2200, S.P. 283-08-06, F.A. Proj. UI 409 (5), Orleans Parish. CD 1/31, under LB.

▲ Associated Pipe Line Contractors, Inc., 3272 Westheimer St., Houston, Tex., CA $1,320,000. laying 63½ mi. gas pipe lines, LOUISIANA and MISSISSIPPI, CA $1,516,000, 71 mi. gas lines, VRGINIA and MARYLAND;
Houston Contracting Co., 2707 Ferndale St., Houston, Tex., CA $1,585,000, laying 84.8 mi. gas pipe lines, ALABAMA and GEORGIA;
Panama-Williams Co., Melrose Bldg., Houston, Tex., CA $1,445,000, 67½ mi. gas pipe lines, SOUTH CAROLINA and NORTH CAROLINA. Grand total $5,866,000. Transcontinental Gas Pipe Line Corp., 3100 Travis St., Houston, Tex. Raymond H. Crow, c/o owner, ch. engr. CD 1/12/50, under Texas and New York.

▲ KENTUCKY—Commonwealth of Ky., Dpt. Hys., Frankfort,
Ky.—Schimepeler Constr. Co., 4023 Brook St., Louisville, Ky. LB $1,333,172. service areas near Lebanon Jct. and near Shepherdsville, Contrs. 11-A and 11-B,
Ky.—John C. Wile Constr. Co., 826 Humler Ave., Louisville, Ky. LB $390,794. toll plazas near Elizabethtown and Shepherdsville, Contr. 10-A and 10-B, Bullitt and Hardin Counties, Kentucky Turnpike Proj. Bids Mar. 18. CD 3/1.

TENNESSEE—State Dpt. Hys. & P. Wks., Cotton States Bldg., Nashville,
Massman Constr. Co., 20 W. 9th St., Kansas City, Mo. CA $634,439. four river piers for bridge over Tennessee River, Chattanooga, Proj. U-072-1-(3), Hamilton Co. Bids Mar. 4, awrded Mar. 7. CD 2/10.

BUILDINGS

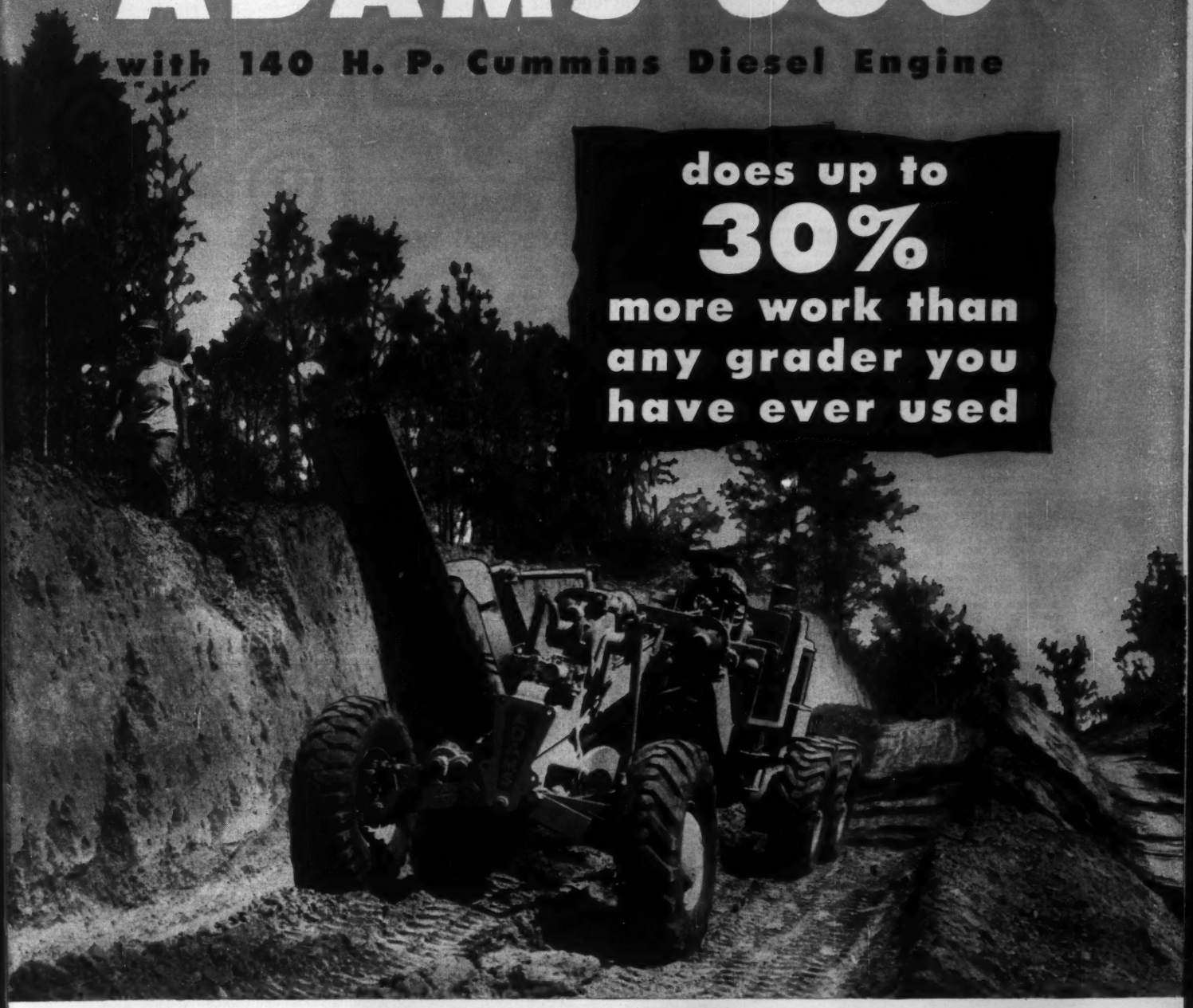
LOW BIDS AND CONTRACTS

▲ Luria Brothers, 2300 Wilson Blvd., Arlington, Va. Owner Builds. $2,000,000. 132 brick detached

(Continued on page 102)

ADAMS "660"

with 140 H. P. Cummins Diesel Engine



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- **Does most jobs better**
- **Does any job faster**

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Make your next motor grader an **ADAMS**

(Continued from page 100)

HOMES, Shirley Hy. and Edsall Rd., FAIRFAX, VA. Jack C. Cohen, 7961 Eastern Ave., Silver Spring, Md., archt.

▲ **Magazine Bros.**, 1014 Woodward Bldg., Wash., D. C., Owner Builds. $2,169,000. 213-HOMES, Bren-Mar Sect. FAIRFAX, VA. Corning & Moore, 1726 M. St. N.W., Wash., D. C., archts.

▲ **James Fox & Son**, 2501 E. Franklin St., Richmond, Va. CA $1,000,000. BANK, 2nd and Grace Sts., RICHMOND, VA. Southern Bank & Trust Co., 400 E. Grace St., Richmond, Va. Carneal & Johnston, Atlantic Life Bldg., Richmond, Va., archts.

▲ **Southeastern Constr. Co.**, 1121 Quarrier St., Charleston, W. Va., CA, $3,821,000. Total est. $4,078,703. 6 story, bsmnt., 47x83 ft., 7 story, bsmnt., L-shaped, 160x44x57 ft., 33x38 ft. boiler bldg. HOSPITAL addns., alterations, WHEELING, W. VA. Ohio Valley General Hospital, 20 and Eoff Sts., Wheeling, W. Va. Bids Mar. 2. CD 1/7.

E. A. Scott & Sons, Box 338, Jesup, Ga., LB $673,187, elementary and high SCHOOL (white), combination elementary and high (colored), elementary school (colored), MOUNT VERNON GA. State School Bldg. Auth., 41 Exchange Pl. S. E., Atlanta, Ga. Bids Mar. 17. CD 2/28.

Blue Ribbon Constr. Co., 3333 Palm Ave., Hialeah, Fla. CA $569,402. 57 one story RESIDENCES, MIAMI, FLA. Charles Giller & H. Maxwell Parish, 1400 N. E. 125 St., North Miami, Fla., archt. Awarded Mar. 18.

▲ **Mackle Co., Inc.**, 2818 S. W. 22 St., Miami, Fla., CA $1,060,944, 160 RESIDENCES, MIAMI, FLA. Westwood Lake, Inc., 2818 S. W. 22 St., Miami, Fla. James E. Vensel, 2820 Coral Way, Miami, Fla., archt. Awarded Mar. 21.

Farnsworth & Chambers Co., Inc., Box 332, New Orleans, La. CA $777,707. completion, alterations and addns. to East and West DORMITORIES, existing Highland Hall DORMITORY, BATON ROUGE, LA. State University, State Capitol, Baton Rouge, La. CD 1/26, under LB.

▲ **Farnsworth & Chambers Co., Inc.**, 3018 Leland St., Houston, Tex. CA $5,421,000. 9 story, bsmnt., brick, masonry steel frame Schumpert HOSPITAL, Margaret Place and Warrington Place, SHREVEPORT, LA. Sisters of Charity of Incarnate Word, 941 Margaret Place, Shreveport, La. Bids Feb. 16, awarded Mar. 18. CD 2/24, under LB.

▲ **Jack T. Durrett Constr. Co.**, 1000 High School Dr., Okalona, Ky. Owner Builds. $4,500,000. 300 ranch type HOUSES Bittersweet Villa, LOUISVILLE, KY.

▲ **Joseph Dahlem Constr. Co.**, 908 Baxter Ave., Louisville, Ky. CA $1,500,000. Preston Highway and Indian Trail SHOPPING CENTER, 50,000 sq. ft. department store, 2 supermarkets, 33 smaller stores, filling station, LOUISVILLE, KY. George A. Young & Co. and Joseph Dahlem, 950 Winchester Rd., Lexington, Ky. Awarded Mar. 18. CD 3/10.

Erhart-Knopf Constr. Co., 1112 E. Broadway, Louisville, Ky. CA Est. $800,000. 151 HOMES, near LOUISVILLE, KY. Town & Country Homes, 1112 E. Broadway, Louisville, Ky.

▲ **Converse Bridge & Steel Co.**, 2408 Vance Ave., Chattanooga, Tenn., CA PLANT to fabricate equipment for nuclear power plants and wharf, CHATTANOOGA, TENN. Combustion Engineering Co., W. Main St., Chattanooga, Tenn.

† **Troy Constr. Corp.**, 2100 Allor Ave., Knoxville, Tenn. CA $520,814, constr. Solid STATE BLDG. 3043, in the X-10 area, Inv. 401-55-7A, OAK RIDGE, TENN. U. S. Atomic Energy Comn., Oak Ridge, Tenn. Bids Mar. 15. CD 2/9.

MIDDLE WEST

BIDS ASKED—HEAVY CONSTRUCTION

STATE HIGHWAY LETTINGS

BRIDGES

April 12 Wisconsin — May 3 Ohio

STREETS AND ROADS

April 12 Wisconsin — April 26, May 3 Ohio

Ill., Chicago—BA 4/7—City, City Hall, Zone 2, arcading Roosevelt College for Congress Expressway. $500,000. CD 9/13/51.

BIDS ASKED—BUILDINGS

Ill., Lyons—SCHOOL ADDNS.—BA 4/5—School District 103, Lyons, Elm Elementary and Costello Elementary Schools addns. $500,000. Perkins & Will, 309 W. Jackson Blvd., Chicago, Zone 6, archts.

Wis., Manitowoc—COURT HOUSE—BA 4/15—Manitowoc Co., Court House, court house alterations and annex. $820,000. F. W. Raeuber & Assocs., 1024 S. 9 St., archts. CD 2/24.

Mich., Stockbridge—SCHOOL—BA 4/19—Stockbridge Agricultural Community School Distr., West Elementary school addns. to Gregory and Munith Schools, high school gymnasium. $600,000. Louis C. Kingscott & Assoc., Inc., 511 Monroe St., Kalamazoo, archts. CD 12/21.

▲ **Wis., Milwaukee**—WAR MEMORIAL—BA 5/5—Milwaukee Co. Park Comn., Court House, war memorial. $2,250,000. Eero Saarinen & Assocs., Bloomfield Hills, Mich., and Maynard W. Meyer & Assocs., 424 E. Wells St., Milwaukee, Zone 2, archts. CD 12/22.

SOON LETS CONTRACT—BUILDINGS

▲ **Ill., Chicago**—APARTMENT—American National Bank & Trust Co., 33 N. La Salle St., soon lets contract 252-unit apartment bldg., 401 Oakdale Ave. $4,000,000. Lowenberg & Loewenberg, 111 W. Monroe St., Chicago, Zone 3, archts. CD 2/28.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

Allied Asphalt Paving Co., 13912 Halsted St., Riverdale, Ill., LB, $812,433, 5 paving contracts, incl. curbing, grading BROADVIEW, ILL. Village, Village Hall, Broadview, Ill. Bids Mar. 14. CD 3/8.

▲ **Louis Scully & Sons**, 6127 N. Hiawatha St., Chicago, Ill., LB $961,131. sanitary-storm sewers, Ashland Ave., 144 St., 149 St., Page Ave. and laterals;

John C. Tully, 33 N. LaSalle St., Chicago 2, Ill. LB $980,160. sanitary-storm sewers, Union, Park and Washington Sts. and laterals, HARVEY, ILL. City, Harvey, Ill. Bids Mar. 14. CD 2/28.

WISCONSIN—State Hy. Comn., State Office Bldg., Madison,

Wis.—Tri-State Constr. Co., Alma, Wis., LB $77,646. Contract 1, structure, C. T. Hy. "S" Proj. S0672 (1), Chippewa Co.;

Wis.—Brennan Brothers, Lansing, Ia., LB $562,512 Contract 1, structures S. T. Hy. 9, Proj. S 0980 (1), Crawford Co. Bids Mar. 22. CD 3/3.

▲ **WISCONSIN**—State Hy. Comn., State Office Bldg., Madison, Wis.

Wis.—John F. Bloomer Co., 341 W. College Ave., Appleton, Wis., LB $596,796, Contract 1, grading, base, b. conc. 5.2 mi. U.S. H. 45 and S.T.H. 29, Proj. 020-2 (13), Shawano Co.;

Wis.—Adolph Cherney & Victor Zeman, Maribel, Wis., LB $341,052, Contract 1, b. conc. 7.523 mi. S.T. Hys. 29, 47 and 55, Proj. T 09-1 (8) and T 09-1 (15), Shawano Co.;

Wis.—Bolanger Constr. Co., Casco, Wis., LB $143,323. Contract 1, grading, base 2.131 mi. S.T. Hy.s. 42 and 29, Proj. T 01-4 (13) and T 0439 (3), Kewanee Co.;

Wis.—H. Turner & Son, Boscobel, Wis., LB, $678,553. Contract 1, grading, structures, ballast base high type pavement 7.046 mi. U.S. Hy. 51, Proj. F 05-3 (21) and F 05-4 (38), Marathon and Lincoln Counties;

Wis.—Arthur J. Pagel, Almond, Wis., LB $594,847, Contract 1, grading, base course 10.578 mi. U.S. Hy. 51, Proj. 05-4 (37), Lincoln Co.;

Wis.—Ben Ruesch, Medford, Wis., LB $131,802, Contract 1, shoulder wid'n. 9.601 mi. S.T. Hy. 35, Proj. T 028-3 (5) and T 028-3 (7), Burnett and Polk Counties;

Wis.—Jos. D. Bonness, Inc., 10815 W. Watertown Plank Road, Milwaukee, Wis., LB $433,725. Contract 1, c. conc. 1.287 mi. C.T. Hy. "BB" Proj. 0351 (6), Milwaukee Co.;

Wis.—Schuette Builders, Custer St., Manitowoc, Wis., LB $609,339, Contract 1, grading, base, c. conc. 6.425 mi. S.T. Hy. 57, Proj. F 02-4 (13) Brown Co.;

Wis.—F. F. Mengel Co., Wisconsin Rapids, Wis., LB $361,657, Contract 1, c. conc. 7.134 mi. U.S. Hy. 51, Proj. F-6301 (6) and F 05-3 (20) Portage Co.;

Wis.—Jay W. Craig Co., 1814 N. E. California St., Minneapolis, Minn., LB $89,526, Contract 1, single aggreg. bit. surf. 8.877 mi. S.T. Hy. 60, Proj. T 0227 (2), Columbia Co.; LB $77,933, Contract 1, single aggreg. bit. 6.657 mi. U.S. Hy. 51, Proj. T 05-4 (18), Oneida Co.;

Wis.—Rasmussen Constr. Co., Oshkosh, Wis., LB $145,588. Contract 1, b. conc. 6.009 mi. U.S. Hy. 45, Proj. T 027-1 (7), Fond du Lac Co.;

Wis.—Megarry Bros., St. Cloud, Minn., LB $112,777, Contract 1, single aggreg. bit. 12.192 mi. S.T. Hy. 73, Proj. T 047 (7), Taylor Co.; LB $80,296, Contracts 1 and 2, single aggreg. bit. surf. 9.292 mi. S.T. Hy. 70. Proj. S 0157 (7) and S 0157 (6), Burnett and Washburn Counties. Bids Mar. 22. CD 3/3.

† **J. H. Findorff & Son, Inc.**, 601 W. Wilson St., Madison, Wis., LB, $672,113, maintenance hangar, shops, Truax Field, No. 48-013-55-12, MADISON, WIS. U. S. Eng., 428 Federal Bldg., Milwaukee, Zone 1, Wis. Bids Mar. 15. CD 2/18.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Douglas G. Oviatt**, 643 Green Rd., Cleveland, O. and **S. W. Selker**, 1779 S. Taylor Rd., Cleveland Heights, O. Own Forces. $5,000,000. 161 ranch-type and colonial HOMES in new subdivision to be known as "Quilliams Highlands", CLEVELAND, O.

▲ **Community Development, Inc.**, 9th-Chester Bldg., Cleveland 14, O. Owner Builds. $1,300,000. 148-suite HOUSING for low income families, 5-acre site E. 79th St. and Woodland Ave., CLEVELAND, O.

▲ **H. L. Vokes Co.**, 1000 Wayside St., Cleveland, O. CA Est. $2,000,000. TEMPLE, Fairmount Blvd. between Richmond and Edgewood Rds., CLEVELAND, O. Euclid Ave. Temple, Rabbi Barnett R. Bricker, 8206 Euclid Ave., Cleveland, O. CD 3/24/54.

▲ **B. G. Danis Co., Inc.**, 1618 E. 1 St., Dayton, O. CA Est. $3,195,000. 1 and 2 story, 325x531 ft. SERVICE BLDG., storage yards; CA Est. $190,000, 19,400 sq. ft. GARAGE ,both on Broadway, south of Miami River Bridge, DAYTON, O. Dayton Power & Light Co., 25 N. Main St., Dayton, O.

▲ **C. V. Perry & Co.**, 40 W. Gay St., Columbus, O. Owner Builds. $4,000,000. 350 HOMES in Brookgrove Subdivision, GROVE CITY, O.

Franklin Homes, Inc., Salem, O. Owner Builds. $350,000. 32 HOUSES, Sunset Blvd. and Fairview Ave. SALEM, O.

Superior Constr. Co., 1900 E. 7th St., Gary, Ind. CA $500,000. 2 story, bsmnt. STORE, 532 Broadway, SOUTH BEND, IND. J. C. Penney Co., 330 W. 34 St., New York, N. Y. Awarded Mar. 11.

Quinn Home Builders, Inc., 3046 S. Western Ave., Chicago, Ill. Own Forces. $650,000. 45 HOMES, BELLWOOD, ILL.

Person Constr. Co., 130 N. Wells St., Chicago 6, Ill., LB, $834,800. Piper, Komensky, Emerson, Irving, Hiawatha, LaVergne, Pershing, SCHOOLS addns., BERWYN, ILL. School Dist. 100, 6593 W. 26 St., Berwyn, Ill. CD 2/21, under LB.

▲ **Crane Constr. Co.**, 201 E. Walton St., Chicago, Zone 11, Ill., CA, $10,000,000, three 23 story, 664-family unit APARTMENTS, 3950 Lakeshore Dr., CHICAGO, ILL. John J. Mack, 201 E. Walton St., Chicago, Ill. Shaw, Metz & Dolio, 208 S. LaSalle St., Chicago, Zone 4, archts. Awarded Mar. 17.

▲ **Sumner Sollitt Co.**, 307 N. Michigan Ave., Chicago, Ill., CA Total est. $3,000,000. 25 story APARTMENT and GARAGE, 247 E. Chestnut St., CHICAGO, ILL. 247 E. Chestnut St. Building Corp., c/o A. Epstein & Sons, archts., 2011 Pershing Rd., Chicago 9, Ill. Bids Feb. 7. CD 2/1.

▲ **Sumner Sollitt Co.**, 307 N. Michigan St., Chicago, Zone 1, Ill., CA, $15,000,000. four APARTMENTS, Lakeshore Dr., Diversey Blvd. "Promenade Apartments." Bids Mar. 10. CD 3/8. CA $10,000,000. two 29 story, 533 unit, APARTMENTS, Lakeshore Dr. and Walton St., "900 Esplanade," CHICAGO, ILL. Herbert S. Greenwald, 135 S. La Salle St., Chicago 3, Ill. Awarded Mar. 19. CD 10/13.

Leahy & Nagle Home Builders, 8359 S. Paulina St., Chicago, Ill. Own Forces. $650,000. 50 HOMES, OAKLAWN, ILL. M. J. McCarthy, 6201 S. Washtenaw St., Chicago, Ill., archt.

▲ **Hoeppner-Bartlett Co.**, 631 E. Madison St., Eau Claire, Wis., LB $1,715,000, Senior HIGH SCHOOL, EAU CLAIRE, WIS. Bd. Educ., 122 Mappa St., Eau Claire, Wis. Bids Mar. 16 CD 2/8.

▲ **B. Perini & Sons**, 73 Montwait Ave., Framingham, Mass., CA, $4,511,624, general contract. CD 2/18, under LB;

C. A. Hooper Co., 2026 Pennsylvania Ave., Hyland-Hall Co., 212 N. Bassett St., Pharo Heating Co., 1302 Regent St., Madison, Wis., CA, $870,000, heating, refrigeration and plumbing and drainage combination work;

Robert J. Nickles, Inc., 303 S. Ingersoll St., Madison, Wis., CA $665,488, electrical work for CITY HALL-COURT HOUSE, MADISON, WIS. City, City Hall and Dane Co., Court House, both Madison, Wis. Bids Feb. 10. Grand total $6,047,112. CD 2/21, under LB.

▲ **Babcock & Wilcox Co., Atomic Energy Div.**, 330 S. Main St., Akron, O. CA $1,000,000. Proj. No. 65-A fabrication, installation of NUCLEAR REACTOR, ANN ARBOR, MICH. Regents of University of Michigan, 200 Plant Service Bldg., Ann Arbor, Mich. Bids Mar. 6. CD 2/3.

Gosnick Constr. Co., Benton Harbor, Mich. LB $631,462. general contract 2 story, bsmnt., 160x200 ft. HIGH SCHOOL, BENTON HARBOR, MICH. City, Bd. Educ., Benton Harbor, Mich. Bids Mar. 10. CD 2/10.

Spence Brothers, 417 McCoskry St., Saginaw, Mich. CA $957,400. concrete, steel SERVICE BLDG., TRAVERSE CITY, MICH. Consumers Power Co., 212 Michigan Ave W., Jackson, Mich. Bids Mar. 7. CD 2/10.

WEST OF MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION

STATE HIGHWAY LETTINGS

BRIDGES

April 5 Iowa — April 6 Oklahoma

STREETS AND ROADS

April 5 Iowa — April 6 Oklahoma

▲† **Okla., Altus**—DORMITORIES, etc.—BA 4/21—U. S. Eng., Box 61, Tulsa, Zone 2, dormitories, dining halls, Altus Air Force Base, ENG-34-066-55-76. $1,000,000. CD 6/27/51.

▲† **Tex., San Antonio**—BOQ—BA 4/22—U. S. Eng., Box 1229, Galveston, BOQ 200-nurses capacity, 5 story part bsmnt. dormitory, Brooke Army Medical Center, Inv. No. ENG-41-243-55-53. $1,000,000-$5,000,000. Bid date changed. CD 3/18.

BIDS ASKED—BUILDINGS

Minn., Richfield (Minneapolis P.O.)—SCHOOL—BA 4/10—Bd. Educ., E. C. Ellenson, clk., high school, 72 St. and Harriet Ave. $500,000, Thorshov & Cerny, 400 Metropolitan Bldg., Minneapolis, archts. CD 9/30.

▲ **Mo., St. Louis**—DORMITORY—BA 4/14—St. Louis University, F. A. Bertram, dir. Business & Finance, 221 N. Grand Blvd., Zone 3, 8 story, bsmnt., brick, rein.-con. women's dormitory, 3811-15 W. Pine Blvd. $1,025,000. Leo A. Daley Co., 411 N. 7 St., Zone 1, archt. CD 2/2.

▲ **Minn., Minneapolis**—BANK—BA 5/3—Federal Reserve Bank of the Ninth District, 73 S. Fifth St., 8 story addn. on top of existing bank, remodel present bldg. $5,000,000, Larson & McLaren, 1901 Foshay Tower, archts. CD 3/30/54.

SOON LETS CONTRACT—BUILDINGS

▲ **Colo., Denver**—FACTORY—Sundstrand Machine Tool Co., 2555 11 St., Rockford, Ill., soon lets contract 1 story, 132,000 sq. ft., brick, steel, 23,000 sq. ft. on mezzanine aircraft equipment factory, near here. $5,000,000. Olson & Urbain, 5 S. Wabash Ave., Chicago 3, Ill., engrs.-archts. CD 1/12.

▲ **Kan., Merriam**—WAREHOUSE—Western Electric Co., c/o T. C. Morris, br. mgr., 3433 Roanoke Rd., Kansas City, Mo., soon lets contract 200,000 sq. ft. distr. warehouse, shop and area headquarters' office. $1,500,000. CD 10/31/52.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

MINNESOTA—State Hy. Dpt., 1246 University Ave., St. Paul,

Anderson & Sons, Inc., 100 N. Seventh St., Minneapolis, Minn. CA $984,646. c.conc. 9.8 mi. between 1½ mi. southwest of Belle Plaine and Jordan, Scott Co. CD 3/16, under LB.

▲† **Westinghouse Electric Corp.**, 707 Boyle Bldg., Little Rock, Ark. LB $1,466,320. installing 2 main generators, Table Rock Dam, Taney Co., CIVENG-03-050-55-37, MISSOURI. U. S. Eng., P. O. Box 867, Little Rock, Ark. Bids Mar. 21. CD 2/16.

▲ **SOUTH DAKOTA**—State Hy. Comn., Pierre,

S. D., **Megarry Bros.**, St. Cloud, Minn., CA $186,930, bit. surf. (maint. retread type) 19.531 mi. FAP 177A, Pennington Co.;

S. D.—**Western Eng. Co.**, Harlan, Ia., CA $208,660. bit. surf. (maint. retread type) 20.217 mi. FAP 212, Tripp Co.;

S. D.—**G. H. Lindekugel & Sons**, Mitchell, S. D., CA $111,961 base course, bit. surf. 7.988 mi. S 248 (6), Jackson and Washabaugh Counties;

S. D.—**Pasco Constr. Co.**, Sioux Falls, S. D., CA $204,511. grading, etc. and sub-base, 14.163 mi. FAP 201B-C St. Wk.), Hyde and Buffalo Counties;

S. D.—**Tennefos Constr. Co.** 62½ Broadway, Fargo, N. D. and **Steve R. Oberg Constr. Co.**, Sioux Falls, S. D., CA $523,351. grading, etc. and sub-base, 20.915 mi. F 241 (14), Meade and Ziebach Counties;

S. D.—**J. L. Healy Constr. Co.**, 301 Western Surety Bldg., Sioux Falls, S. D., CA $86,844, base course imprv. and bit. surf. 7.036 mi. F 190 (11) and F 73 (8), Campbell Co.; CA $233,992, base course imprv. and bit. surf. 14.44 mi. F 219 (14) and F 458 (7), Walworth Co. Grand total $1,556,249. Bids Mar. 15. CD 3/2.

KANSAS—Kansas Turnpike Auth., El Dorado,

Rhoades Constr. Co., Inc., P. O. Box 225, Newton, Kan. LB $561,146, est. $605,195. 8 structures, steel beam continuous spans, Contr. 3-11-B (1), Butler Co. (Correction-Low bidder). CD 3/21, under LB.

▲ **KANSAS**—Kansas Turnpike Auth., Little Theatre City Bldg., Emporia,

Kan.— **Amis Constr. Co.**, 1647 Exchange St., Oklahoma City, Okla., and **San Ore Constr. Co.**, McPherson, Kan. CA $585,531, est. $640,008. Contr. 6-21 E (1) grading, drainage 8.75 mi., Lyon Co.; CA $536,468, est. $561,830. Contr. 6-20-E (1) grading, drainage 4.52 mi. Lyon Co.;

Kan.—**List & Clark Constr. Co.**, 730 Railway Exchange Bldg., Kansas City, Mo. CA $713,985, est. $1,118,680. Contr. 8-33-E (1) grading, drainage 3.32 mi. Douglas Co. Grand total $1,835,984. CD 3/4, under LB.

▲ **KANSAS**—Kansas Turnpike Auth., 2306 W. 10 St., Topeka,

Kan.—**Joseph L. Pohl, Contractor**, Nevada, Mo. LB $399,515 est. $417,756. grading, drainage 5 mi. Contr. 9-36-E (1) Leavenworth Co.;

Kan.—**Condon-Cunningham Co.**, 4229 Lafayette St., Omaha, Neb. LB $828,170, est. $829,658. grading, drainage 3.41 mi. Contr. 9-37-E (1), Leavenworth and Wyandotte Counties;

Kan.—**John P. Abramson Constr. Co.**, 720 Savings & Loan Bldg., Des Moines, Ia. LB $594,804, est. $615,-561. grading, drainage 6.91 mi. Contr. 5-18-E (1), Lyon Co.;

Kan.—**J. D. Armstrong**, Ames, Ia. LB $310,810. grading, drainage 2.15 mi. Contr. 5-19-E (2), Lyon Co. Bids Mar 18. CD 3/3.

▲ **KANSAS**—Kansas Turnpike Auth., 2306 W. 10 St., Topeka,

Maxwell Bridge Co., Columbus, Kan. LB $185,623, est. $198,772. 3 multiple-span continuous steel beam bridges, Contr. 5-18-B (1), Lyon Co.; LB $229,278, est. $245,582. 1 bridge, 2 adjacent 4 span continuous steel bridges on separate concrete abutments, Contr. 5-18-B (2), Lyon Co.; LB $337,131, est. $359,439. Bridge No. 151, two adjacent five span continuous steel girder bridges, Contr. 5-18-B (3) Lyon Co.; LB $510,701, est. $547,840. Bridge No. 152 two adjacent thirty-eight span continuous steel girder bridges, Contr. 5-19-B (1), Lyons Co.; LB $347,938, est. $378,244. 3 multiple span continuous steel beam bridges, 1 multiple span steel girder bridge, Contr. 5-19-B (2), Lyon Co. Bids Mar. 18. CD 3/3.

KANSAS—Kansas Turnpike Auth., 2306 W. 10 St., Topeka,

George Bennett Constr. Co., 3001 N. Seventh St. Trafficway, Kansas City, Kan. LB $618,378, est. $639,521. grading, drainage 4.53 mi. Contr. 8-31-E (1), Douglas Co. CD 9/30.

† **Eugene Luhr & Co.**, Columbia, Ill., LB $597,545, est. $125,000-$375,000. Phase III, Oklahoma City Floodway, constr. Oklahoma City Floodway, incl. 1,010, 000 cu. yds. semicompacted fill, etc. near Oklahoma City, CIVENG 34,066-55-52, OKLAHOMA. U. S. Eng., Box 61, Tulsa 2, Okla. Bids Mar. 16. CD 9/7/44.

▲† Peter Kiewit Sons Co., 1024 Omaha Natl. Bank Bldg., Omaha, Neb., CA $1,075,985. addnl. airfield paving, Phase II, Altus Air Force Base, Eng-34-066-55-57, ALTS, OKLA. U. S. Eng., Box 61, Tulsa 2, Okla. Bids Mar. 9. CD 3/17, under LB.

▲ **Fort Worth & Denver Ry. Co.**, H. A. Aalberg, ch. engr. 105 W. Adams St., Chicago 6, Ill. and **Chicago, Rock Island & Pacific R. R. Co.**, W. B. Throckmorton, ch. engr., LaSalle St. Station, Chicago 54, Ill. Own Forces. $750,000, laying heavy rail between Corsicana and Teague; $475,000, rock ballasting roadbed, ditching, embankments, between Corsicana and Teague, TEXAS. CD 2/28.

BUILDINGS

LOW BIDS AND CONTRACTS

Dunn-Wright Constr. Co., E. C. Harold, pres., Bennett Bldg., Kansas City, Kan. Own Forces. $500,000. Professional OFFICE BLDG., Seventh St. and Tauromee Ave., KANSAS CITY, KAN. J. L. O'Bryan & Assoc., Bennett Bldg., Kansas City, Kan., archts.

Yarbrough Constr. Co., Box 851, Austin, Tex., CA $819,818, DORMITORIES and INFIRMARY for State Farm Colony, AUSTIN, TEX. Bd. for Texas State Hospitals & Special Schools, 4405 Lamar St., Austin, Tex. Bids Mar. 8. CD 3/11, under LB.

James T. Taylor & Son, P. O. Box 225, Fort Worth, Tex., LB $545,917. 3 story brick, 2-wings, tile, steel LIBRARY addn. to Memorial Bldg., FORT WORTH, TEX. Southwestern Baptist Theological Seminary, Dr. J. M. Williams, pres., Seminary Hill, Fort Worth, Tex. Bids Mar. 10. CD 2/23.

Linbeck Constr. Corp., 2720 Saint St., Houston, Tex., LB $532,928, est. $549,000. 1 story, 45,000 sq. ft., brick, concrete, steel Elementary SCHOOL No. 1 area at South Houston, PASADENA, TEX. Pasadena Independent School Dist., Pasadena, Tex. Bids Mar. 17. CD 3/2.

▲ **L. H. Lacy Co.**, 5630 Yale Blvd. and **Peterson Constr. Co.**, 3650 Oliver St., Dallas, Tex., CA Approx. $1,000,-000. PLANT, near TYLER, TEX National Homes Corp., 3409 Oaklawn St., Dallas, Tex. CD 3/21.

Robbins Constr. Co., 1726 Champa St., Denver, Colo., LB, $680,000. elementary SCHOOL, E. 6 and Potomac Sts., two primary schools, E. 16 and Paris Sts. and E. 14 and Boston Sts., AURORA, COLO. Bd. Educ., School Dist. 28-J, Consolidated Adams and Arapahoe Counties, Aurora, Colo. Bids Mar. 15. CD 3/3.

▲ **Mrs. Ellen Smith**, 6500 S. Broadway, Littleton, Colo., Separate Contracts, $3,000,000, 305-house HOUSING, Meadowbrook Valley, LITTLETON, COLO.

FAR WEST

BIDS ASKED—HEAVY CONSTRUCTION

STATE HIGHWAY LETTINGS
STREETS AND ROADS
April 7 Nevada

BIDS ASKED—BUILDINGS

Utah, Salt Lake City—SCHOOL—BA 5/5—Bd. Educ., 440 E. First South St., elementary school. $600,000. Plans deposit $25. Woods & Woods, 19 W. South Temple St., archts. CD 4/27.

▲ **Utah, Salt Lake City**—HIGH SCHOOL—BA 6/1—Bd. Educ., 440 E. First South St., Southeast High School on property of old state prison. $5,000,000. Young & Ehlers, 827 Continental Bank Bldg., archts. CD 2/19/52.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **Morrison-Knudsen Co., Inc.**, 319 Broadway, Boise, Idaho, CA $2,407,076, grading, installing 16 mi. railroad track on Washington shore of Columbia River near the Dalles Dam, WASHINGTON. Spokane, Portland & Seattle Ry. Co., C. F. Thomas, ch. engr., 1101 N. W. Hoyt St., Portland 7, Ore. CD 1/27, under LB.

▲† **MacDonald & Kruse**, 7540 Wheatland Ave., Sun Valley, Calif. CA $1,508,227. Arcadia Wash channel imprv., Arcadia, Los Angeles Co., CIVENG-04-353-55-28, CALIFORNIA. U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif. CD 3/14, under LB.

▲† **Clyde W. Woods & Sons, Inc.**, 6900 Tujinga Ave., North Hollywood, Calif. CA $1,623,018, est. $2,000,-000. Lower Los Angeles River imprvt., Long Beach, CIVENG-04-353-55-27, CALIFORNIA. U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif. Bids Mar. 10, awarded Mar. 16. CD 3/16, under LB.

▲ **Connelly-Pacific Co.**, 1925 Water St., Long Beach, Calif. CA $2,255,045. Unit 2, Los Alamitos Bay Marina, LONG BEACH, CALIF. City, City Hall, Long Beach, Calif. Bids Dec. 30, awarded Feb. 16. CD 1/5, under LB.

▲ **Morrison-Knudsen Co., Inc. & Stolte, Inc.**, 411 W. 5 St., Los Angeles, Calif., LB $1,158,185 constr. Seaside Drain and Interceptor, Long Beach, LOS ANGELES, CALIF. Los Angeles Flood Control Dist., 2250 Alcazar St., Los Angeles, Calif. Bids Mar. 18. CD 2/23.

BUILDINGS

LOW BIDS AND CONTRACTS

W. R. Cahoon Constr. Co., 3208 Pole Line Rd., Pocatello, Idaho, CA $982,472, 50-bed State Tuberculosis HOSPITAL WING, GOODING, IDAHO. State Dpt. P. Wks. Boise, Idaho, Bids Feb. 15, awarded Mar. 17. CD 2/25, under LB.

▲ **James I. Barnes Constr. Co.**, Central Bldg., Seattle, Wash., LB $1,578,980, two RESIDENCE HALLS, PULLMAN, WASH. Bd. of Regents, Washington State College. Pullman, Wash. Bids Mar. 22. CD 3/7.

Artesia Gardens, 8205 California Ave., Whittier, Calif., Owner Builds. $487,700. 57 frame, stucco DWELLINGS, 185 Pl., 186 St., Bellshire Ave., ARTESIA, CALIF.

Joy Homes, 7862 S. Western Ave., Los Angeles, Calif. Owner Builds. $840,720. 93 frame, stucco DWELL-St. Malo and Coney Aves., COVINA, CALIF.

John C. Branagh & Son, 42 LaSalle Ave., Piedmont, Calif., CA $761,293, ADMINISTRATION BLDG., OAKLAND, CALIF. East Bay Municipal Utility Dist., 512 16th St., Oakland 23, Calif. Bids Feb. 25, awarded Mar. 11. CD 2/9.

▲ **Foremost Constr. Co.**, 435 S. LaCienega St., Los Angeles, Calif. CA $1,043,000. 111 DWELLINGS, Vineland Ave., Ahren St., Feather Ave., PUENTE, CALIF. Foremost Homes, Dovco Homes, Rouco Homes, Cadron Homes, Alpaca Homes, Inc., 614 N. Maple Dr., Beverly Hills, Calif. Paener & Krisel, 827 Moraga Dr., Los Angeles, Calif., archts.

▲ **B. O. Larsen**, 1340 E St., San Diego, Calif. LB $1,559,726. Junior COLLEGE and Vocational SCHOOL, SAN DIEGO, CALIF. San Diego Unified School Dist., 825 Union Ave., San Diego, Calif. CD 5/1/53.

▲ **Van Bokkelen-Cole Co.**, 955 W. Grand Ave., Oakland, Calif. CA Est. $1,000,000. Container Mfg. PLANT on 16 acre tract, SAN LEANDRO, CALIF. Western Corrugated Box, Inc., c/o J. Y. Long Co., engr., 1441 Franklin St., Oakland, Calif.

CANADA

BIDS ASKED—HEAVY CONSTRUCTION

STATE HIGHWAY LETTINGS
STREETS AND ROADS
April 13 Ontario

BIDS ASKED—BUILDINGS

Que., Rouyn — EXCHANGE — BA 4/6 — Northern Telephone Co. Ltd., 150 Eight St., Noranda, Que., automatic exchange bldg., Ave. du Lac and Portage Rd. $600,000. Bruce, Brown & Brisley, 48 Jackes Ave., Toronto, Ont., archts. CD 6/9/54.

▲ **Ont., Petawawa**—BARRACKS, etc.—BA 4/14—Defence Constr. Ltd., 56 Lyon St., Ottawa, 250-man barrack block, 4 Q.M. and technical stores bldgs. at army base. $1,700,000. Plans deposit $100. CD 12/15.

SOON LETS CONTRACT—BUILDINGS

Que., Quebec City—APARTMENT HOUSE—Immeubles du Parc, 427 Rue St. Vallier, soon lets contract 68-suite apartment, Laurier Ave. $700,000. Fiset & Deschamps, 604 Rue St. Jean, archts. Tasse, Sarrault & Assocs., 70 Rue St. Paul, engrs. CD 3/12/54.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

General Constr. Co. Ltd., Granville Island, Vancouver, B. C., LB $929,625, railway, Mile 20 to Mile 38, Prince George to Dawson Creek, BRITISH COLUMBIA Pacific Great Eastern Ry. Co., W. A. C. Bennett, pres., 736 Granville St., Vancouver, B. C. Bids Mar. 17. CD 3/1.

ONTARIO—Dpt. Hys., Parliament Bldgs., Toronto

McNamara Constr. Co. Ltd., 42 Industrialist St., Toronto, Ont., CA $563,500, rock dyke and earth embankment at pier sites for Burlington high level bridge, Queen Elizabeth Way, Burlington Contract 55-15. Bids Mar. 16. CD 3/23, under LB.

Michaud & Simard, Inc., 575 Rue Arago W., Quebec City, Que., CA $612,999. water mains, sewers and pumping station, CHARLESBOURG, QUE. Municipality, City Hall, Charlesbourg, Que. Zachee Langlais, 105 Cote de la Montagne, Quebec City, Que., engr. CD 9/30/49.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Hamilton Constr. Co.**, Postal Station "D", Hamilton, Ont., CA Est. $6,000,000. 600 HOUSES "Elizabeth Gardens" Nelson Twp., HAMILTON, ONT. Proctor, Redfern & Laughlin, 11 Jordan St., Toronto, Ont., engrs.

H. J. F. McFarland Constr. Co. Ltd., Talbot St., Picton, Ont., CA $749,203, ADMINISTRATION BLDG., lecture training, 180-man barrack block and guardhouse, Army Station, PETAWAWA, ONT. Defence Constr. Ltd., 56 Lyon St., Ottawa, Ont. Bids Feb. 22. CD 1/26.

Anglin Norcross Ontario, Ltd., 224 Davenport Rd., Toronto, Ont., CA Est. $500,000. MECHANICAL SHOPS addn. at oil refinery, SARNIA, ONT. Imperial Oil Ltd., 56 Church St., Toronto, Ont. Bids Mar. 9, awarded Mar. 17. CD 2/24.

▲ **Home & Gardens, Inc.**, 2081 Aylmer St., Montreal, Que. Owner Builds. $3,250,000. HOUSING DEVELOPMENT, 250 bungalows, new streets, CHAMBLY, QUE. Marc Cing-Marc, 1980 Sherbrooke St. W., Montreal, Que., archt.

▲ **Xavier Neron et Fils Ltee**, 355 Rue Lafontaine Chicoutimi, Que., CA $1,400,000, rein.-con. fdn. frame brick, stone 4 new wing, each 4 story bsmnt. normal SCHOOL and elementary SCHOOL addn., CHICOUTIMI, QUE. Les Religieuses Notre Dame du Bon Conseil, Racine St., Chicoutimi, Que.

▲ **Meteor Century Builders**, Gordon Brown Bldg., Montreal, Que., Owner Builds, $1,700,000. 100 bungalow HOUSING DEVELOPMENT, Gouin Blvd. near Pesilles Blvd., MONTREAL, QUE. CD 3/23.

ALASKA

BIDS ASKED—HEAVY CONSTRUCTION

▲† **Alaska, Seward**—SHIPPING TERMINAL—BA 4/21—The Alaska R. R., Dpt. Interior, Anchorage, marine terminal. $4,400,000. Plans deposit $100. CD 3/3.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

† **Anchorage Builders, Inc. and Kincaid & King Constr. Co.**, Box 897, Spenard, Alaska, CA $837,887. hardstands and parking areas, Inv. 55-35. FORT RICHARDSON, ALASKA. U. S. Eng., Anchorage, Alaska. Bids Mar. 9. CD 3/16, under LB.

(Proposal Advertisements see pp. 113 to 117)

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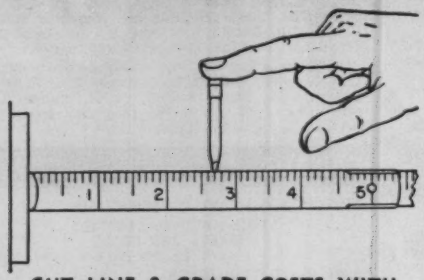

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UNIT PRICES

Baltimore's Under-Harbor Tunnel Draws Close Bids

Patapsco is first trench-type, vehicular twin tube

Merritt-Chapman & Scott's $29.8-million low bid on Patapsco River tunnel and shafts for Maryland State Road Commission on March 10 was less than 1 percent below the next bidder. High by more than a million dollars on dredging, the low bidder's concrete price was $750,000 below the second bid and steel pulled the overall bid down by $620,000.

Patapsco, first twin-tube, trench-type vehicular tunnel anywhere, extends 1.2 mi across river from Fairfield to Canton in Baltimore, Md., as part of a 14-mi expressway to link north-south traffic. Singstad & Bailey, New York, are consulting engineers for the tunnel, J. E. Greiner, Baltimore, for the entire project.

Tunnel consists of 21twin-tube prefabricated sheet steel sections each 70-by 35-ft and 300 ft long with space in each tube for two traffic lanes. Tubes are 29-ft 2-in ID, 33-ft 2-in OD, and contain 22-ft wide, 14-ft high roadways, exhaust and fresh air ducts. Sections will be sunk and joined in a trench dredged an average 90 ft deep beneath river so that the top will be not less than 50 ft below low water level of the main harbor channel. The top will get a 5-ft sand and gravel cover to prevent anchor damage.

Two ventilation shafts of steel and reinforced concrete on pile foundations will be constructed in the dry from surface excavations at tunnel ends. Fairfield shaft is 140 ft wide at right angles to tunnel, 62 ft parallel to tunnel, 60 ft deep from ground level to shaft bottom. Shaft top will form part of foundation walls for ventilator building.

Roadway base is a concrete slab built on 10-in eye beams for a total 11- and 12-in thickness. A 2-in mastic cushion will lie between this slab and 4-in. thick brick roadway paving.

Wage rates are: skilled $1.15 per hr, semi-skilled $0.90, common $0.75.

Project is ½ mi at each end from railhead. Completion date is Oct. 1, 1957.

1	Merritt-Chapman & Scott Corp., N. Y., N. Y.	$29,849,081
2	J. Rich Steers, Inc., Morrison-Knudsen Co., Inc., Massman Const. Co., Johnson Drake & Piper, Inc., New York, N. Y.	30,136,510
5	Fred. Snare Corp., Mason & Hanger, Silas Mason Co., Inc., Corbetta Const. Co., Inc., N. Y.	33,405,522
EE	Singstad & Bailey, New York, N. Y.	31,621,267

Bids 3-10-55 Items	Unit	Quantity	Unit Prices 1C	2
Demolish bldgs, structs.	ls	.....	$300,000	$250,000
Excavation, vent shafts.	cy	42,300	16.00	15.00
Dredge tunnel sections.	cy	2,650,000	1.50	1.10
Tow, sink, join, dewater tunnel sections	ls	.....	973,000	600,000
Fill, cl A	cy	35,000	5.00	7.00
B	cy	187,000	2.00	3.50
C	cy	760,000	1.50	1.10
D	cy	70,000	1.25	1.75
Test piles	lf	450	10.00	10.00
Pile load tests	ea	10	2,000	500.00
Conc piles, cast in pl	lf	38,500	6.00	8.00
Concrete, type 1	cy	20,000	55.00	40.00
2	cy	31,700	20.00	35.00
3	cy	61,000	18.00	30.00
4	cy	101,800	46.00	44.00
5	cy	12,600	70.00	60.00
6	cy	9,700	20.00	30.00
Grout behind plts at jts.	ls	.....	100,000	10,000
Pneumatic mortar	sf	670,000	0.80	1.25
Dampproofing	sy	34,200	0.80	0.60
Waterproofing, cmt coat, river sump.	ls	.....	1,000	1,000
1-ply membrane	sy	3,700	0.90	1.20
6-ply membrane	sy	4,900	6.00	7.00
brick-in-asph mastic	cy	225	90.00	90.00
Reinforcing steel	lb	18,110,000	0.12	0.12
Wire mesh	lb	820,000	0.12	0.15
Steel in tunnel sections	lb	39,600,000	0.16	0.17
Tunnel roadway beams	lb	3,950,000	0.10	0.13
ceiling channels, curbs & anchorage	lb	497,000	0.15	0.20
Steel in vent shafts	lb	26,000	6.00	5.00
Stainless stl ceiling hanger units	ea	2,600,000	0.15	0.18
Misc stl & iron	lb	1,054	60.00	60.00
Iron castings, manholes.	lb	86,000	0.60	0.65
Steel castings, manholes	lb	47,000	0.20	0.30
Copper tubing drains	lb	10,400	0.30	0.35
water stops	lb	5,300	3.00	1.80
Fresh air flues	ea	200	3.00	1.50
Pipe, galv WI, 4" ϕ	lf	1,702	100.00	40.00
6" ϕ	lf	275	10.00	19.00
8" ϕ	lf	13,450	12.00	13.20
brass, 2½" ϕ	lf	4,600	20.00	21.00
6"	lf	500	36.00	41.00
Cast iron boxes, SL6	lb	90	25.00	33.00
other	lb	31,700	2.00	1.00
		60	1.25	1.50

Bids 3-10-55 Item	Unit	Quantity	Unit Prices 1C	2
Conduit, rigid galv stl 1½" ϕ	lf	50,500	1.00	1.50
2"	lf	900	1.60	2.50
3½"	lf	2,400	4.00	4.00
4"	lf	520	4.00	6.00
5"	lf	30	12.00	15.00
rig silicon bronze ¾"	lf	300	3.25	3.50
1"	lf	3,300	4.00	3.50
1½"	lf	5,700	5.00	4.50
3"	lf	150	17.00	8.00
asbestos cmt 3½" ϕ	lf	5,300	1.30	1.90
4"	lf	26,000	1.40	1.90
Copper grndg cable, bare	lf	32,000	1.00	0.90
VC ducts 3½", 4-way	lf	12,660	2.00	3.60
6-way	lf	12,750	2.00	2.60
Ceramic glazed tile, ceiling, f&i	sf	312,000	1.65	1.70
wall, f&i	sf	285,000	2.00	1.80
sq ceiling, f&deliver	ea	142,600	0.10	0.10
sq wall, f&deliver	ea	122,300	0.10	0.10
bull-nose wall, f&del.	ea	220	0.30	0.25
miter wall, f&del.	ea	30	0.50	0.50
ex ceiling & wall, f&d	ls	.....	5,000	5,000
Cmt mortar base	lf	26,000	1.25	0.50
ceiling coves	lf	26,000	1.25	1.00
Terra cotta, glazd arch.	sf	68,200	4.00	5.00
Hollow terra cotta tile air duct bulkheads	cy	8	50.00	60.00
Asb ebony frames & door for niches, fire valve	ea	84	160.00	195.00
gt vlv & cleanout	ea	22	340.00	425.00
cleanout	ea	20	340.00	400.00
vlv, flush air duct	ea	20	180.00	200.00
fire extinguisher	ea	126	160.00	180.00
high tensn chambr	ea	44	700.00	750.00
low tension chamber	ea	46	300.00	330.00
Vit enam ctd pipe railg	lf	13,050	4.00	8.00
stl plaques	ea	500	5.00	35.00
Brick pvmt, f&i	sy	42,100	8.00	9.00
White vit lane mrkr, f&i	lf	38,130	3.00	3.30
Pavg brick & white vit lane mrkr, ex, f&d	ls	.....	600.00	1,000
Engr's field office, Fairfield	ls	.....	30,000	45,000
Canton	ls	.....	30,000	45,000

Liquidated damages:

- Ext walls Fairfield vent shaft & clearing area to permit Fairfield land section contractor to excavate near shaft $500/day
- Ext walls Canton vent shaft to permit exc on N & W sides for Canton vent bldg $500/day
- Fairfield vent shaft to permit const Fairfield vent bldg, $2,500/day
- Complete 12 tunnel sections conn to Fairfield vent shaft and 2 vent shafts except interior finish, through Canton vent shaft to permit equip installation, $2,500/day
- Complete 21 tunnel sections & tunnel through Canton shaft except handrails & painting $7,000/day
- Entire project $7,000/day

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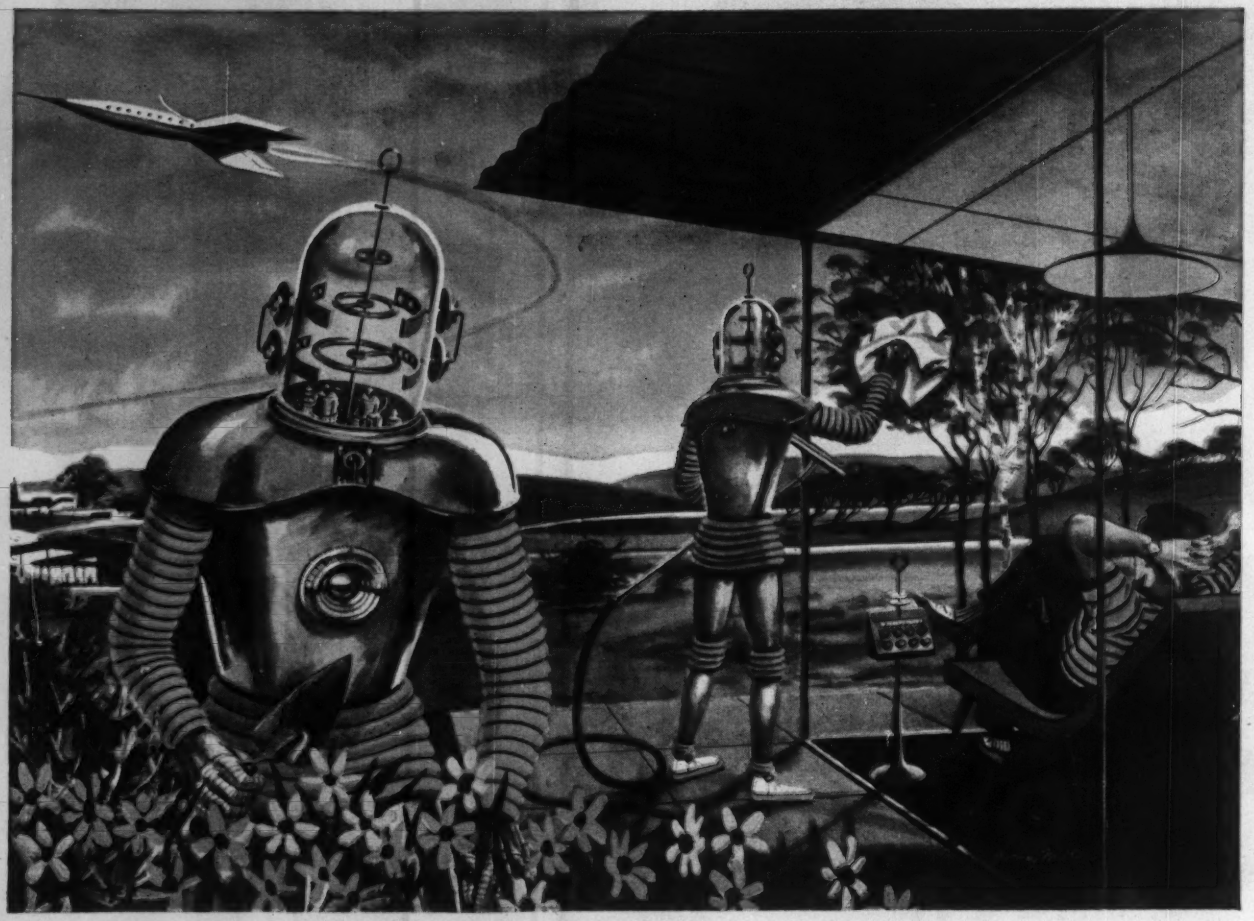

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Highway Land-Buying Plan Gets Governor's Criticism

Ribicoff suggests that Connecticut Highway Department is buying land too far in advance of its actual needs

The Connecticut Highway Department's program of advance land acquisition for the expressway has been challenged by the state's new governor, Abraham A. Ribicoff.

Ordering the highway department to be "most cautious" in making agreements to buy land, Ribicoff also has forbid it to make land purchases too far in advance of actual construction.

The governor thinks it is wrong for the state to condemn property for highway use far in advance of construction, thus taking it off local tax lists, and then lease the property back to private individuals.

Ribicoff's interest in the land-acquisition program was aroused by Hartford's Deputy Mayor, James H. Kinsella, who called attention to the fact that some property in Hartford has been bought by the highway department, then leased back to the original owners.

• **Legal?**—The governor has asked Attorney-General John J. Bracken to investigate the legality of such procedures. He feels that if they turn out to be illegal, the state should rescind such transactions. If they are legal, says Ribicoff, he feels that the state should not buy property too far in advance of construction.

Ribicoff said that a better method would be for the state to take some form of option on property it might want for highways, this would prevent sale to others and prevent owners from making costly improvements on the property. It would not take property off local tax rolls until actually needed.

• **Cuts cost**—Observers point out that advance land-acquisition programs for highways are designed to cut down costs. It prevents homes and other buildings from being put up on the right of way, and then having to be demolished. An advance option of some type is sufficient to prevent this.

Connecticut is in the midst of land purchase for the $400-million expressway from Greenwich, near the New York line, to Killingly near the Rhode Island line. The cost of land acquisition for this highway alone is expected to be over $65 million. About 4,700 parcels of land will be involved.

• **Audit**—So far, the state has bought about $17 million worth, and entered into negotiations for 1,737 properties valued at $21 million. About $1 million worth of final condemnation proceedings are being held up, pending completion of auditing of accounts of the highway department, particularly its Bureau of Rights of Way. This investigation was touched off a couple of weeks ago when a state referee rejected an appraisal price of $170,000 for a hotel in Greenwich across the right of way. A state valuation engineer said the property was worth only $56,000.

Utah Rules Contractor Must Pay Franchise Tax

Utah's Supreme Court has upheld the State Tax Commission in its ruling that the Riley Stoker Corp., of Worcester, Mass., must pay $8,573 in state corporation franchise tax for the period it was installing a steam generating plant for Utah Power & Light Co. from 1947 to 1953.

The Massachusetts firm had challenged the Tax Commission on the ground that its activities in Utah were part of interstate commerce, since nearly all design, engineering, and manufacturing were done outside Utah.

The court held, however, that assembling and constructing the plant (at a cost of about $4.7 million, of which more than $1 million was spent in Utah) was a project of sufficient size to be considered as "doing business within the state." It ruled that the contractor could be assessed for the tax on the part of its contracts carried in Utah.

Biggest Week in 15 Months

During the week ended March 24, contract awards reported to ENR racked up their biggest weekly total in 15 months. The $545-million total included several very large contracts, including the following awards:

A $55-million residential development, shopping center, and sewage treatment plant near Camden, N. J., in the fast-growing Delaware Valley area.

A $40-million plant for Chrysler Corp. in Kokomo, Ind.

A $30-million pipeline between El Paso, Texas and Los Angeles.

A $26-million home development and shopping center near Cleveland.

A $20-million home development and shopping center near St. Louis.

It is not surprising that this week set an all-time record of $104 million for commercial contracts. On housing, it was second only to the record week established in January 1953.

GE Predicts Big Sales Of Heat Pumps by 1960

The heat pump, whose sales have been moving slowly so far, may be due for a big gain within the next few years.

H. M. Brundage, manager of General Electric Co.'s heat pump department, estimated last week that although there are only 4,300 heat pumps now in operation in the U.S., the number will jump to 200,000 by 1960 and 900,000 by 1964.

GE last week announced price cuts in its Weathertron models, averaging from 10% to 15%, measured in terms of unit heating capacity. Though most pumps so far have been installed in the South, GE is now offering new models designed for northern climates. The company plans to push sales in the New York area and in other cities that have comparable temperature conditions.

So far, the GE sales campaign in southern New Jersey, carried on in cooperation with Atlantic City Electric Co. (ENR June 3, 1954, p. 94), has not resulted in many sales. The power company reports 20 pumps were sold last year and estimates about 150 so far this year.

Even with the latest price cuts, installed cost of the Weathertron is still way above conventional heating and cooling equipment. Such a pump might cost from $2,800 to $3,100 for a seven-room, $25,000 house. Operating costs are also high. So far, the heat pump has usually proved most popular in those areas where power costs are found to be low and where its air-conditioning feature is particularly valuable.

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Remember, lift capacity is *work capacity*. Obviously, the machine with the heaviest lift rating not only picks up larger crane loads — it also has more strength and stability to handle bigger dragline and clamshell buckets on a wider work range — more power and speed to increase shovel and hoe production.

Check the Koehring lift ratings shown below — then ask your Koehring distributor to show you the figures on price per pound of lifting capacity.

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KOEHRING MODEL	SIZE DIPPER	KOEHRING LIFT CAPACITIES (Crawler ratings based on 75% of tipping load. Rubber-tired machines — 85% of tipping load)		PRICE PER POUND OF LIFT CAP.*
205 CRAWLER	½-Yd.	20,000 lbs.	30-foot boom at 10-ft. radius	?
205 ON RUBBER	½-Yd.	30,000 lbs.	25-foot boom at 12-ft. radius	?
304 CRAWLER	¾-Yd.	27,800 lbs.	35-foot boom at 12-ft. radius	?
304 ON RUBBER	¾-Yd.	50,000 lbs.	30-foot boom at 10-ft. radius	?
405 CRAWLER	1-Yd.	40,000 lbs.	40-foot boom at 12-ft. radius	?
605 CRAWLER	1½-Yds.	72,300 lbs.	50-foot boom at 12-ft. radius	?
1005 CRAWLER	2½-Yds.	159,000 lbs.	50-foot boom at 12-ft. radius	?

Figures available on request—ask your Koehring distributor to see them.

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How to Insure the Unpredictable Atom? Private Owners Want the Answer

Liabilities of an accidential explosion could be huge. U. S. Government might have to provide the insurance

With Consolidated Edison Co. of New York seeking permission to build the first privately owned nuclear power plant, Atomic Energy Commission officials, businessmen, and financiers are pondering this question: How do you insure a privately owned atomic plant against liability suits if there is an explosion?

The problem of what premium rates to set is extremely difficult, since there is little past experience. Yet everyone concedes that an accidental explosion is at least a possibility; and it could be catastrophic.

AEC has already started briefing a committee of top executives from the insurance industry, who were named by the industry and given clearance by AEC.

• **Government insurance**—It's quite possible that the insurance companies may find they can't insure such huge, indefinite risks. The government may have to step in and offer protection, somewhat on the pattern of the war-damage insurance it made available during World War II. The private companies insured could pay an arbitrary premium which might be adjusted later on the basis of experience.

Without insurance, there might be considerable difficulty. According to Paul W. Quillen, of Atomic Development Associates: "Private persons may be unwilling to risk all their possessions, and utility commissions may be unwilling to allow utilities to risk their assets essential for the regular public service, in an endeavor to tame a new force which conceivably might destroy them in the process." Quillen's group is considering the construction of a good-sized atomic plant near Detroit (ENR Mar. 24, p. 94).

• **Con Ed optimistic**—H. R. Searing, president of Consolidated Edison, is a lot more optimistic. He says his company does not consider the insurance question as much of an obstacle at this point. Con Ed is the biggest utility system in the U. S., and can assume substantial risks. "Furthermore," says Searing, "the reactor we are considering has certain advantages from the safety viewpoint. The net result is that we do not believe that the risks from reactor operations are disproportionate to other risks which we have in our system."

Searing also points out that it will be three or four years before his company's reactor will start operating. By that time, he expects that some form of solution to the insurance problem will have been worked out.

Two More Equipment Firms Get Backing for Export Sales

Two more manufacturers in the construction field have received lines of credit from the Export-Import Bank to help them in sales of heavy equipment abroad. Under a plan worked out last year (ENR Aug. 1954, p. 151), the government bank will guarantee up to 60% of the contract price of sales against credit risks.

Bethlehem Steel Export Corp., of New York, gets a credit line of $6.5 million to finance foreign sales of construction and railroad materials. Blaw-Knox Co., Pittsburgh, will get a line of about $1¾ million for export sales of construction equipment and other capital goods.

East Coast Is a Super-City According to Yale Planners

Yale University city planners have decided that the concentration of population along the East Coast of the U. S. from Portland, Me., to Norfolk, Va., should be considered as one huge "regional city."

Prof. Christopher Tunnard, director of Yale's graduate program in city planning, points out that this 600-mi stretch is almost solidly built up. The area has about 34,000,000 people, about a fifth of U. S. population. But it covers only about 3% of the U. S. land area.

Because of this concentration, the city experts believe that some useful insights will be attained by thinking of the whole area as a single regional city, with certain common problems. A study is now being made.

One aspect of the study will be to attempt to work out a new definition of a "metropolitan area," by marking the least-traveled sections on highways between major cities. The area includes such big centers as Baltimore, Newark, Bridgeport, and Springfield, in addition to Washington, Philadelphia, Boston, and New York.

GM to Spend $75 Million On Indianapolis Facilities

Indianapolis will benefit from General Motors Corp.'s recent decision to spend $75 million on constructing facilities for design and production of gas turbine aircraft engines. The program will be concentrated in a 95-acre tract in the southwest corner of the city. Space for research will be doubled, from 500,000 to 1 million sq. ft. The program is expected to take four years.

Business Briefs . . .

• **Thew Shovel Co.**, of Lorain, Ohio has offered to buy the inventory and plant of Byers Machine Co., Ravenna, Ohio, for about $1 million. C. B. Smythe, president of Thew, says Byers would complement Thew's operations in the power shovel and crane industry, which he says is having a substantial pickup in business. Byers would continue to operate as a wholly-owned subsidiary.

• **Fluor—Corp., Ltd.**, and Westinghouse Air Brake Co. are studying the possibilities of a package nuclear power plant. Object is to design a low-capacity reactor that wouldn't need operators and would require only routine maintenance.

• **Armco Steel Corp.** plans to spend $25 million to expand operations at Bulter, Pa. It will install a new 56-in. hot strip mill and a new annealing and pickling line. It also will enlarge its slabbing mill and relocate the railroad wheel works.

• **Oil from sands**—Two Canadian firms are planning to produce and transport oil from the Athabasca tar sands in northeast Alberta. Can-Amera Oil-Sands Development Ltd., of Calgary, and Canadian Oil Sands Ltd., of Toronto, are projecting a separation plant in the field with a 400-mi pipeline to Edmonton, where a processing plant would be built. The project is estimated at around $50 million.

• **Great Lakes Steel Corp.**, Detroit, a subsidiary of National Steel Corp., is putting up new facilities to expand cold-rolled sheet production by at least 600,000 tons annually.

HOW COME HYATTS ARE BETTER BEARINGS?

I'll tell you, says HY WHEELER, the sage of the socket wrench:

The *big* thing is, Hyatt's got more *know-how* than anybody else in the roller bearing business. Hyatts have been standard equipment on most cars, trucks and tractors since the early days, and brother, don't think all that experience don't make a difference!

F'rinstance, Hyatt's got a way of grinding the inside diameters of races that guarantees absolutely uniform wall thickness—developed it themselves. They use the finished race O.D. to produce perfectly concentric I.D. It's these "little" things you can't see with the naked eye that make a big difference in performance—and make me keep sayin':

There's other bearings that *look* as good, but you *hold out for Hyatts in the blue and yellow box.* When it comes to *quality,*

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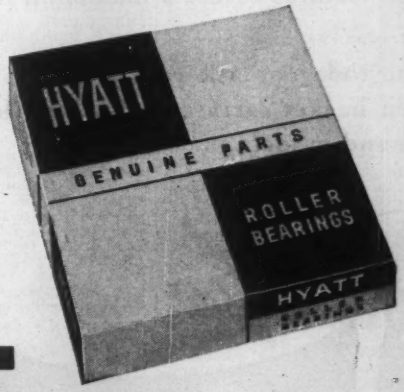

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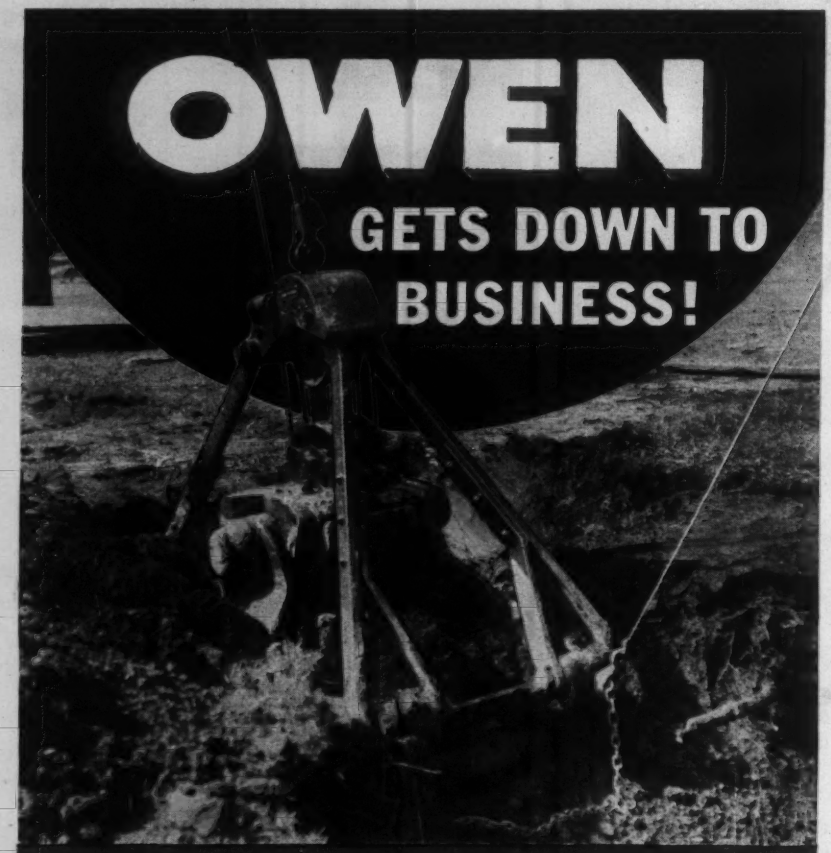
HYATT BEARINGS DIVISION • GENERAL MOTORS CORPORATION • HARRISON, NEW JERSEY



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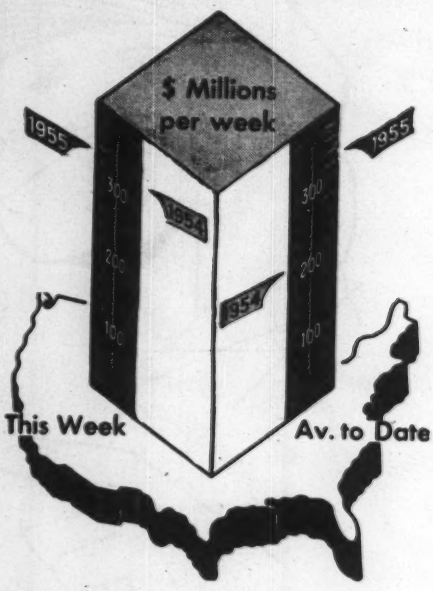
Activity This Week

As reported to ENR
(in millions of dollars)



Amount of contracts let

	This Week	Cumulative 13 wks 1955	1954	% chge
Federal	$18.4	$423.2	$223.6	+89
State and municipal	71.8	1,123.6	1,036.8	+8
Total public	90.2	1,546.8	1,260.4	+23
Total private	245.6	2,820.2	1,535.7	+84
U. S. Total	$335.8	$4,367.0	$2,796.1	+56
Contracts by type of work				
Waterworks	$3.6	$89.3	$46.9	+48
Sewerage	4.8	95.4	77.2	+24
Bridges	5.7	115.0	109.5	+5
Highways	25.6	433.2	320.6	+35
Earthwork, waterways	6.1	90.0	70.3	+28
Buildings:				
Public, excl. hsg.	27.3	426.1	416.2	+2
Housg., public	2.6	45.6	47.3	−4
Housg., private	170.4	1,747.2	826.6	+111
Commercial	29.5	402.9	267.9	+50
Industrial	19.1	518.3	389.2	+33
Unclassified	41.1	424.0	224.4	+89
Total	$335.8	$4,367.0	$2,796.1	+56

NOTE: Minimum size projects included are: Waterworks and waterways, $44,000; other public works, $73,000; industrial buildings, $93,000; other buildings, $344,000.

New capital for construction

(millions of dollars)	Week of Mar. 24 1955	Cumulative 12 wks 1955	% chge '54-'55
Corporate securities	$93.1	$738.9	+4
State and municipal:			
All except housing	71.7	941.6	+11
Housing	0.4	36.0	+9
Federal loans	1.0	20.3	−16
Federal aid	...	...	...
Total non-federal	$166.2	$1,736.8	+8
Federal appropriations:			
In U. S.	...	...	...
Outside U. S.	...	...	...
Total new capital	$166.2	$1,736.8	+8

ENR cost and volume indexes, 1955

		Base years = 100 1913	1926	1949
Construction cost	3/24	646.14	10.60	135.45
	3/3†	645.70	310.39	135.36
Building cost	3/24	460.07	248.70	130.78
	3/3†	459.63	248.46	130.65
Volume	Feb.	459	187	133
	Jan.	560	228	162

† Official monthly indexes for March

OFFICIAL PROPOSALS

Bids: April 29, 1955

City of Akron, Ohio

LEGAL NOTICE

SEALED PROPOSALS will be received at the office of the DIRECTOR OF PUBLIC SERVICE, MUNICIPAL BUILDING, AKRON, OHIO, until 12 o'clock noon (Eastern Standard Time) or 1:00 o'clock (Daylight Saving Time) of April 29, 1955 for Sewage Treatment Improvements comprising Aeration Tanks, Pipe Gallery, Final Settling Tanks, Blower Building with Diesel Engine Driven Blowers, complete with all piping and Appurtenances, at the Akron Sewage Plant, Botzum, Ohio. The Base Bid General Construction includes all mechanical and electrical work. All proposals shall include the Additional Capacity, Additive Alternate "A" and also Additive Alternate "B" for the Addition to the Maintenance Building.

Copies of the contract drawings, specifications and forms of proposal are on file and may be seen at the office of the Department of Public Service, Division of Sewerage, 501 Municipal Building, Akron, Ohio or at the office of Beiswenger and Hoch, Consulting Engineers, 661 West Market Street, Akron, Ohio.

Full sets of the drawings, specifications and proposal forms may be obtained from the department of Public Service, Division of Sewerage, Room 501 Municipal Building, Akron, Ohio, by making a deposit, in advance, of One Hundred Dollars ($100.00), checks payable to the City of Akron, Ohio. This deposit will be refunded in full to all those who submit a formal proposal to the Director of Public Service. All others who take out plans and specifications will be refunded the deposit in full provided all documents are returned prepaid to the City in good condition within Fifteen (15) calendar days after the date for receiving proposals. Copies of the specifications may be obtained by making a deposit, in advance, of Fifteen Dollars ($15.00) which will be refunded upon return of the specifications in good condition within Fifteen (15) days of the date for receiving proposals. Individual sheets of the contract drawings may be purchased at Two Dollars ($2.00) per sheet C.O.D. but are not returnable nor will the purchase price be refunded. Addenda, when issued, will be mailed only to those of record as having taken out plans and specifications.

Each proposal must contain the full name or names of the party or parties making the same and of all persons interested therein. Each proposal must be accompanied by a consent of surety from an approved surety company and by a certified or cashier's check on a solvent bank, and made payable to the City of Akron in an amount equal to not less than five (5) per cent of the total amount of the bid for Contract 20. The bid check will be a guarantee that if the proposal be accepted, a contract will be entered into and its performance secured by a required bond; and in default thereof, said check and the amount represented thereby will be forfeited to the City as liquidated damages.

Proposals must be accompanied by the affidavit as to interested parties, and, in the case of corporations not chartered in Ohio, by proper certificate that such corporation is authorized to do business in Ohio.

Bidders must use the printed forms, as none other will be accepted.

The Director of Public Service reserves the right to reject any or all bids, and to waive any informalities in the bids received and to accept any bid which is deemed most favorable to the City of Akron.

THE DIRECTOR OF PUBLIC SERVICE
Leo G. Walter

Ordinance No. 267—1955 March 15, 1955
Advertised—March 31, 1955

Bids: May 3, 1955

Furnishing and Erecting Spillway Gates

NOTICE TO BIDDERS

Sealed proposals for furnishing and erecting spillway gates for the Boonton Dam will be received by the Board of Commissioners in the Assembly Chamber of the City Hall, Jersey City, N. J., at 10:30 AM. (DST) on May 3rd 1955, at which place and time they will be publicly opened and read.

The work consists of the furnishing and erection of approximately 300 feet of Bascule Type Gates across the Spillway of the Boonton Dam with appurtenances, operating mechanism and buildings. The dam is located on the Rockaway River on the southerly outskirts of the Town of Boonton and is owned by the City of Jersey City.

Separate proposals will be received on the three divisions of the work as follows:

Contract A. Bascule Type Gates for Boonton Dam.
Contract B. Structural Steel Suspension Walk.
Contract C. Electrical Work.

Each bid must be accompanied by a certified check in the amount of five (5%) percent of the bid, and in addition a Surety Consent, all in accordance with the Instructions to Bidders.

Bidders shall be required to furnish a bond upon the execution of the contract, bond to be bond of a surety company authorized to do business in the State of New Jersey, in an amount equal to the full amount of the contract.

Copies of plans, proposal forms, specifications and forms of bond and contract can be seen at the office of Clyde Potts Associates, Consulting Engineers, 30 Church Street, New York City, or may be obtained by prospective bidders upon depositing Twenty Dollars ($20), which sum will be refunded to Contractors who submit bids, on return of the specifications within ten (10) days after the contract has been awarded, if same are in good condition when returned.

The Board of Commissioners reserve the right to reject any and all proposals.

James A. Tumulty, Jr.
City Clerk

Dated March 15th 1955

Bids: April 20, 1955

New Jersey Turnpike Authority

CONTRACT NO. PE-4

Proposals are invited for Contract No. PE-4 which involves the construction of nine (9) new bridge structures, the extension of an existing bridge, the construction of a box culvert, and other incidental work, all in connection with the construction of the Pennsylvania Extension of the New Jersey Turnpike, in Burlington County, New Jersey.

The principal items of work include:

Embankment Excavation	12,000 cu. yds.
Open Foundation Excavation	8,260 cu. yds.
Concrete	20,000 cu. yds.
Reinforcement Steel	2,990,000 lbs.
Treated Timber Piles	14,500 lin. ft.
Cast-in-Place Concrete Piles	54,500 lin. ft.
Structural Steel	7,810,000 lbs.
Metal Railing	8,430 lin. ft.
Bridge Approach Slabs	1,500 sq. yds.
Underbridge Slope Paving	11,840 sq. yds.

Proposals will be received at the New Jersey Turnpike Authority Administration Building, New Brunswick, New Jersey, until 11:00 O'Clock, Eastern Standard Time, on the morning of April 20, 1955, at which time and place said proposals will be publicly opened and read.

Each bidder must submit with his proposal a Contractor's Financial and Equipment Statement.

Contract documents may be examined during office hours after March 28, 1955, at the office of the Authority and at the office of the Consulting Engineer, Howard, Needles, Tammen & Bergendoff, 55 Liberty Street, New York 5, New York. Contract Documents will be furnished upon payment of Fifteen Dollars ($15.00) for each set, upon application to the Authority. Contract Documents are not required to be returned and the payment will not be refunded.

NEW JERSEY TURNPIKE AUTHORITY
Paul L. Troast, Chairman

March 25, 1955

OFFICIAL PROPOSAL

RATE: $1.50 per line (or fraction) per insertion.

CLOSING DATE: 10:30 p.m. Friday for issue out following Thursday.

SEND COPY: Official Proposal Division, Engineering News-Record, 330 W. 42nd St., New York 36, N. Y.

Bids: April 18, 1955

Installation of Electrical Work In the Chlorinator House and Intake Structure

FOR THE
BRADFORD CITY WATER AUTHORITY
BRADFORD, PENNSYLVANIA
CONTRACT THREE

Sealed proposals will be received by the undersigned at the offices of the BRADFORD CITY WATER AUTHORITY, Bradford, Pennsylvania, until 2:00 P.M., E.S.T. April 18, 1955, at which place and hour they will be opened for furnishing all necessary labor, materials and equipment, and performing all work for the INSTALLATION OF ELECTRICAL WORK IN THE CHLORINATOR HOUSE AND INTAKE STRUCTURE.

The right is reserved to reject any or all proposals or to waive any informality in the proposals received and to accept any proposal deemed to be most favorable to the interest of the BRADFORD CITY WATER AUTHORITY.

Bids will be taken under advisement and the award of the contract, if awarded, will be made within sxity (60) days after the date of opening the bids.

Each proposal must be accompanied by a money deposit in the form of a draft or certified check on a solvent bank, payable to the BRADFORD CITY WATER AUTHORITY, in an amount not less than ten (10) per cent of the bid total. A satisfactory bidder's bond will be accepted in lieu of a check. The deposits of bidders other than the one to whom the award is made will be returned. The successful bidder will be required to execute the contract and furnish bonds and insurance within ten (10) days from the date of notice of award mailed to him. Upon execution of all contract documents, his deposit will be returned. The amount of security will be one hundred (100) per cent of the contract price.

Copies of the Contract Documents, including the Drawings and Specifications, may be seen at the ollices of the Engineers, Gannett Fleming Corddry and Carpenter, Inc., 600 North Second Street, Harrisburg, Pennsylvania, or at the offices of the BRADFORD CITY WATER AUTHORITY, Room 6, City Hall, Bradford, Pennsylvania, on or after March 23, 1955; or they may be obtained from the Engineers of the above mentioned place upon payment of Five ($5.00) Dollars for each set. No refund will be made for the return of a set of Contract Documents.

H. W. Loveland, Chairman
Bradford City Water Authority
Bradford, Pennsylvania

Bids: April 26, 1955

Contract EXD-130.014

THE PORT OF NEW YORK AUTHORITY
PORT AUTHORITY BUILDING
EIGHTH AVENUE LOBBY
ALTERATIONS TO NORTH SIDE

Sealed proposals for performing alterations in the north side of the Eighth Avenue lobby of the Port Authority Building, 111 Eighth Avenue, New York 11, N. Y., will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 Eighth Avenue, New York 11, N. Y., until 2:30 P.M. on Tuesday, April 26, 1955, at which time said proposals will be opened and read in Room 1108.

Contract documents may be seen at the office of the Engineer of Materials of the Authority, Room 1112. Documents will be furnished upon deposit of $30.00 per set for not more than three sets to any one compang (each set including one copy of the contract drawings). Additional sets will be furnished upon payment of $30.00 per set, which payment is not returnable. Deposits and payments shall be delivered to the Treasury Department, Room 1001, where a receipt in duplicate will be issued. A copy of the receipt shall be delivered to Room 1112, where the documents will be furnished.

Those who have submitted a bid on the contract will receive a refund of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals. Those who have not submitted a bid will receive a refund of one-half of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman

New York, March 31, 1955

OFFICIAL PROPOSALS

RATE: The rate for Official Proposal advertising is $1.80 per line or fraction set solid. Where the advertisement is set other than solid, the space is measured by total space occupied and charged on basis of 12 lines to the inch.

CLOSING DATE: Friday 10:30 A.M. for issue dated the following Thursday.

SEND COPY TO: Official Proposal Division, Engineering News-Record, 330 West 42nd Street, New York 36, N. Y.

Bids: April 14, 1955

New York State Road Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.,—Pursuant to the provisions of the Highway Law, and Article 2, Title 9 of the Public Authorities Law, sealed proposals will be received until ten-thirty o'clock A.M., eastern standard time on the 14th day of April 1955, by Henry A. Cohen, Director, Bureau of Contracts and Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects:

County	Contract No.	Name	Miles	Type	Deposits	Estimated Cost of Work
DISTRICT No. 8, J. S. Bixby, District Engineer, Pleasant Valley Road, Poughkeepsie, N. Y.						
Rockland	H. T. 55-2P	New York State Thruway—Hudson Section—Sub. 8 (Suffern-Nyack Pts. 1 & 2)	7.70	9" Cem. Conc. Pavt. 2 @ 12' Wide=7.05 Mi. Misc. Work=0.65 Mi.	$53,000 Plans $10	$966,000
Rockland	H. T. 55-3P	New York State Thruway—Hudson Section—Sub. 8 (Suffern-Nyack Pt. 3)	4.52	9" Cem. Conc. Pavt. 2 @ 12' Wide=4.47 Mi. Misc. Work=0.05 Mi.	$30,000 Plans $10	568,000
Ulster	P. S. C. 4781	City of Kingston: Broadway and N.Y.C. R.R.	....	Alteration and Additions to Existing Drainage System,	$1,500 Plans $10	28,000

Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts and Accounts, Albany, N. Y., and at the office of the District Engineers noted above, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for Plans and Proposal Forms for each contract is indicated above. A refund will be made in full to bidders for return of one set, in good condition, within 30 days of award, or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

Special attention of bidders is called to "General Information for Bidders" in the proposal, specification, and contract agreement. Award of a contract is subject to priorities and allocations under the Defense Production Act of 1950, as amended, and all regulations issued thereunder.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Laws, as set forth in "Instructions to Bidders."

The right is reserved to reject any or all bids.

John W. Johnson
SUPT. OF PUBLIC WORKS

Bids: April 12, 1955

State of New Jersey
State Highway Department
Trenton

NOTICE IS HEREBY GIVEN that sealed bids will be received by the State Highway Commissioner for:

ROUTE 45 (1927) ROUTE U.S. 130 (1953), SEC. 26

Route 45 (1927) Route U.S. 130 (1953), Section 26, from Dwight Avenue to Collings Avenue, Widening and Dualization, including Champion Avenue Overpass and Connections, Boroughs of Collingswood and Wood-Lynne, City of Camden and Haddon Township, Camden County. Federal Project No. U-199(1). Length 0.651 miles. The principal items of work are:

Estimated: Roadway Items
8,374 cu. yds. Roadway Excavation—Earth
1,508 cu. yds. Wet Excavation
1,826 cu. yds. Borrow Excavation
3,049 cu. yds. Subbase
8,484 sq. yds. Macadam Base Course, 5" & 7" thick
2,082 sq. yds. Penetration Macadam Surface Course, 3" thick
6,631 sq. yds. Pavement Type MA-BC-2, 3" thick
1,117 sq. yds. Concrete Pavement Surface, Plain 8" thick
5,352 sq. yds. Concrete Pavement Surface, Rein. 9" thick
356 lin. ft. Reinforced Concrete Culvert Pipe, various sizes
113 lin. ft. 18" Cast Iron Culvert Pipe
586 lin. ft. Corrugated Metal Culvert Pipe, various sizes
94 lin. ft. 8'-10" x 6'-1" Corrugated Metal Plate Pipe Arch
28 Inlets and Manholes
17,366 lin. ft. White Concrete Vertical Curb
Bridge Items
859 cu. yds. Concrete in Structures
52,220 lbs. Reinforcement Steel in Structures
77,800 lbs. Structural Steel
4,925 lin. ft. Treated Timber Piles
280 cu. ft. Concrete Cribbing

Bids for the above will be received at the office of the State Highway Department, in the CAFETERIA, State Highway Office Building, 1035 Parkway Avenue, Trenton, New Jersey, on Tuesday, April 12, 1955, at TEN o'clock (10:00 A.M.—EASTERN STANDARD TIME), and will be opened and read immediately thereafter.

The receipt and opening of bids is subject to the proper qualification of the bidder in accordance with the provisions of the prequalification law and the regulations adopted by the State Highway Commissioner. Bidders must also submit a revised financial statement and statement of plan and equipment with their bid.

NOTE: The proposed project is a "Federal Aid Project" authorized by the provisions of Title 27 of the Revised Statutes of New Jersey and supplements and by P. L. 413, 82nd Congress, and is to be performed in accordance with the Required Provisions—Federal-Aid Contracts of the Bureau of Public Roads, Department of Commerce, as outlined in the specifications. The attention of bidders is directed to the special provisions covering subletting or assigning the contract. The minimum wage paid to all common labor employed on this contract shall be $0.75 per hour. The minimum wage paid to all intermediate grade of labor employed on this contract shall be $1.00 per hour. The minimum wage paid to all skilled labor employed on this contract shall be $1.50 per hour.

Drawings, specifications and form of bid, contract and bond for the proposed work are on file in the office of the State Highway Department, Trenton, N. J., and may be inspected by prospective bidders during office hours. Plans will be furnished upon payment of a fee of FIFTEEN DOLLARS ($15.00) which will not be refunded for each set of plans upon applications to A. Lee Grover, Chief Clerk, State Highway Department, Room 139, State Highway Office Building, 1035 Parkway Avenue, Trenton, N. J. with a check drawn to the order of the State Highway Department. A charge of $5.00 will be made for supplementary specifications unaccompanied by construction plans. Bids must be made upon the standard proposal forms in the manner designated in the standard State Highway specifications and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and work bid upon on the outside, and must be accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than ten percent (10%) of the amount of the bid, provided that the said certified check shall not be less than $500.00 nor more than $20,000. and must be delivered at the above place on or before the hour named. Copies of the standard proposal forms and sealed special addressed envelopes will be furnished on application. Bids not enclosed in sealed special addressed envelopes will be considered informal and will not be opened. The right is reserved to reject any or all bids.

Signed: STATE HIGHWAY DEPT.,
A. Lee Grover, Chief Clerk

Pennsylvania Turnpike Commission
Harrisburg, Pennsylvania

CANCELLATION OF NOTICE TO BIDDERS

Due to modification of designs and change of water courses throughout the areas of Contract Section 37-JK, part of the Northeastern Extension of the Pennsylvania Turnpike in Moosic and Taylor Boroughs over the Delaware and Hudson Railroad; the Delaware, Lackawanna and Western Railroad and Lackawanna River, Commonwealth of Pennsylvania, bids to be opened March 30, 1955, and Contract Section 37-I, part of the Northeastern Extension of the Pennsylvania Turnpike in Pittston Township and the Borough of Dupont, Luzerne County, Commonwealth of Pennsylvania, and Contract Section 37-J, part of the Northeastern Extension of the Pennsylvania Turnpike in Pittston Township, Luzerne County and the Borough of Moosic, Lackawanna County, Commonwealth of Pennsylvania, bids to be opened April 5, 1955, are hereby cancelled, to be readvertised at a later date.

PENNSYLVANIA TURNPIKE COMMISSION
James F. Torrance
Secretary and Treasurer

Harrisburg, Pennsylvania
March 22, 1955

Bids: April 19, 1955

Contract GT-110.003

THE PORT OF NEW YORK AUTHORITY
PORT AUTHORITY GRAIN TERMINAL
WATERMAIN INSTALLATION AND CLEANING

Sealed proposals for the furnishing and installation of a second watermain supply and cleaning of the existing watermain at the Port Authority Grain Terminal will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 Eighth Avenue, New York 11, N. Y., until 2:30 P.M., Tuesday, April 19, 1955, at which time said proposals will be opened and read in Room 1108.

Contract documents may be seen at the office of the Engineer of Materials of the Authority, Room 1112, and copies will be furnished upon request. No deposit will be required but the documents shall be returned in good condition not later than forty days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman

New York, March 31, 1955

OFFICIAL PROPOSALS

Bids: April 14, 1955

City of Knoxville, Tennessee

NOTICE TO BIDDERS

Seal proposals, invited by the City of Knoxville, will be received by the City Purchasing Agent at the office of the Purchasing Agent, City Hall, Knoxville, Tennessee, until 10:00 A.M., April 14, 1955, at which time they will be publicly opened and read aloud, and the contracts awarded as soon thereafter as practicable for the construction of a new sanitary trunk sewer and appurtenant structures along Second Creek from Western Avenue north to the intersection of the Lonsdale and Lincoln Park lines north of Emerald Avenue, and the construction of the necessary connecting lines and appurtenant structures thereto.

The main line will consist of installing approximately 2,464 lineal feet of 27" pipe, 4,410 lineal feet of 30" pipe, 1,195 lineal feet of 36" pipe, 464 lineal feet of 30" pipe laid in tunnel section in steel liner, and 740 feet of 36" cast in place concrete sewer in tunnel section. All main line sewers are to be connected with rubber gaskets.

The connecting lines will consist of installing approximately 334 lineal feet of 21" sewer pipe and approximately 3,150 lineal feet of 6", 8", and 10" sewers. All connecting line sewers are to be connected with hot-poured bituminous joints.

Three-hundred and sixty-five calendar days will be allowed for this construction.

The instructions to Bidders, Proposal, Specifications and Plans may be examined at the office of the City Engineer, City Hall, Knoxville, Tennessee. Copies of these Contract Documents may be obtained upon the deposit of twenty-five dollars ($25.00) for any set. Any bidder, upon returning such set promptly and in good condition, will be refunded his deposit, and any non-bidder, upon so returning such set, will be refunded one-half of his deposit.

Each proposal must be accompanied by money or a certified check on a solvent bank or trust company, made payable to the City of Knoxville, in the amount of five per cent (5%) of the total bid, as assurance that the bid is made in good faith.

All bidders must be licensed contractors, as required by Chapter 135 of the Public Acts of 1945, as subsequently amended by the General Assembly of the State of Tennessee.

Attention is called to Section 9 of the Rules and Bylaws adopted April 27, 1945 by the State Board of Licensing General Contractors, Nashville, Tennessee, which reads in part as follows: ....

"The architect or engineer shall direct that the number and date of license appear on the envelope containing the bid; otherwise the bid will not be opened."

The City of Knoxville reserves the right to waive any informalities in or to reject any or all bids and to accept the bid which it deems most favorable to the interest of the city, after all bids have been examined and canvassed.

CITY OF KNOXVILLE
(SIGNED) CHARLES O. CURRIER
CITY PURCHASING AGENT
DATED: MARCH 4, 1955
KNOXVILLE, TENNESSEE

Bids: April 18, 1955

Earth Dam and Impounding Reservoir

FOR THE
BRADFORD CITY WATER AUTHORITY
BRADFORD, PENNSYLVANIA
CONTRACT ONE

Sealed proposals will be received by the undersigned in Room 6, City Hall, City of Bradford, McKean County, Pennsylvania, until 2:00 P.M., E.S.T., April 18, 1955, at which place and hour they will be publicly opened and read, for furnishing all necessary labor, materials and equipment, and performing all work for the construction of an Earth Dam and Impounding Reservoir and all appurtenances for Bradford City Water Authority.

Proposal must cover the entire construction and the necessary equipment, labor and materials for the project. The right is reserved to reject any or all proposals and to readvertise and award the contract in the regular manner, or to waive any informality in the proposals received and to accept any proposal deemed to be most favorable to the interest of the Bradford City Water Authority.

Bids will be taken under advisement and the award of Contract, if awarded, will be made within thirty (30) days after the date of opening the bids.

Each proposal must be accompanied by a money deposit in the form of a draft or a certified check on a solvent bank, payable to the Bradford City Water Authority, in an amount not less than ten (10) per cent of the bid total, in accordance with the provisions contained in the Specifications. A satisfactory bid bond will be accepted in lieu of check. The deposits of bidders other than the one to whom the contract is awarded will be returned immediately after the award is made. The successful bidder will be required to execute a contract and furnish bonds and insurance within ten (10) days from the date of notice of award delivered or mailed to him. Upon execution of the contract and approval of the bonds the deposit of the successful bidder will be returned. The amount of security required for the faithful performance of the work will be one hundred (100) per cent of the estimated cost of the work according to the contract price.

Copies of the Contract Documents, including Plans and Specifications, may be seen at the office of Gannett Fleming Corddry & Carpenter, Inc., 123 Forster Street, Harrisburg, Pennsylvania, or at Room 6, City Hall, Bradford, Pennsylvania, on or after March 23, 1955; or they may be obtained at either of the above places upon deposit of Twenty-five ($25.00) Dollars for each set. A refund will be made in full to actual bidders for return of one (1) set in good condition within ten (10) days after closing date for receipt of bids; refund for return of all other sets in good condition within the same period, will be fifty (50) per cent of the deposit.

H. W. Loveland, Chairman
Bradford City Water Authority
Bradford, Pennsylvania

Bids: April 20, 1955

Indiana Toll Road Commission 309 W. Washington Street Old Trails Building Indianapolis, Indiana

NOTICE TO BIDDERS
Contract C-1
Contract C-2
Contract C-1 and C-2

Sealed proposals will be received by the Indiana Toll Road Commission at or before 11:00 A.M., Central Standard Time, April 20, 1955 for the performance of each of the contracts enumerated above:

Contract No. C-1

The grading, drainage, structures and paving of approximately 2.3 miles in Construction Section C-1 of the Indiana East-West Toll Road beginning at a point about 700 feet east of the Indiana State Line at Toll Road Centerline Station 264+00 in Lake County and extending southerly to a point about 500 feet south of Wolf Lake at Toll Road Centerline Station 386+00 in Lake County, Indiana. The approximate quantities of the major items of construction are as follows:

Borrow	813,300 cu. yds.
10" Reinforced Concrete Pavement	62,720 sq. yds.
Culvert Pipes and Underdrains	2,990 lin. ft.
Cast-in-Place Concrete Piling	30,630 lin. ft.
Concrete for Structures	3,070 cu. yds.
Reinforcing Steel	929,550 lbs.
Fabricated Structural Steel	3,762,000 lbs.

Contract No. C-2

The grading, drainage, structures and paving of approximately 2.1 miles in Construction Section C-2 of the Indiana East-West Toll Road beginning at a point about 500 feet south of Wolf Lake at Toll Road Centerline Station 386+00 in Lake County and extending southerly to a point about 700 feet east of Calumet Avenue at Toll Road Centerline Station 497+30.43 in Lake County, Indiana. The approximate quantities of the major items of construction are as follows:

Common Excavation	46,700 cu. yds.
Borrow	1,120,898 cu. yds.
10" Reinforced Concrete Pavement	66,670 sq. yds.
Culvert Pipes and Underdrains	5,675 lin. ft.
Cast-in-Place Concrete Piling	37,050 lin. ft.
Concrete for Structures	7,610 cu. yds.
Reinforcing Steel	1,370,800 lbs.
Fabricated Structural Steel	3,585,000 lbs.

The work covered by Contract C-1 and C-2, which covers a combination of Construction Sections C-1 and C-2, is the construction as above described for the individual Construction Sections, taken together.

Copies of the Plans, Specifications and Proposal Forms for said Contracts are available for public inspection or purchase at the office of the Chief Engineer, Indiana Toll Road Commission, 309 W. Washington Street, Indianapolis, Indiana. These documents may be purchased from said Chief Engineer for the following sums, per set, which sums are non-returnable:

Standard Specifications for the Indiana East-West Toll Road	$ 5.00
Plans, Special Provisions and Proposal Forms, per set, per Construction Section	$25.00
Informational Drawings	
Cross-Sections, per set, per Construction Section	$25.00
Soil Plan and Profiles, per set, per Construction Section	$ 5.00

All Proposals must be on the form prescribed by the Commission and must comply with the terms and conditions set forth in the Contract Documents.

Contractor's statement for qualification on the forms supplied by the Commission will be required from all Bidders.

Each Proposal must be accompanied by a Proposal Guaranty in the amount of five (5%) per cent of the total price bid per Construction Section covered by the Contract. If the Bidder shall tender bids for two or more Contracts which include the same Construction Section, the Construction Section thus duplicated in the bidding need be counted only once in determining the total amount of the Proposal Guaranty. The Proposal Guaranty shall be in the form of an acceptable surety bond or a certified check on a solvent bank.

If the Bidder is an out of state corporation, he shall be required to furnish a certificate from the Secretary of State of Indiana as evidence that the corporation has complied with the Indiana Foreign Corporation Statutes, and that the corporation is authorized to transact business in the State of Indiana.

All bids must be received at or before 11:00 A.M., Central Standard Time, April 20, 1955, in the offices of the Indiana Toll Road Commission, 309 W. Washington Street, Indianapolis, Indiana. At said hour, the bid box will be publicly opened and the bids read.

The award of any of the above-enumerated Contracts, if any award be made, will be to the Bidder or Bidders whose Proposal or combination of Proposals is lowest and best for the performance of the work, taken as a whole, and complies with all the prescribed requirements. The Commission reserves the right to reject any or all Proposals and to waive technicalities.

INDIANA TOLL ROAD COMMISSION
Charles W. Keating — Dr. Dillon Geiger
Secretary-Treasurer — Chairman

Bids: April 5, 1955

Contract 418

CHLORINATING EQUIPMENT

SEALED BIDS will be received by the Board of Water Supply, at its offices, thirteenth floor, 120 Wall Street, New York City, until 11:00 A.M., Eastern Standard Time, on Tuesday, April 5, 1955, for Contract 418, for furnishing, delivering, installing and testing chlorinating and appurtenant equipment for the Neversink intake chamber, located in the Town of Neversink, Sullivan county, New York, and the East Delaware intake and Downsville release water chambers, located in the Town of Colchester, Delaware county, New York, and for furnishing and delivering air compressor units for the Rondout, West Branch and Kensico South effluent chambers, all as set forth in the specifications.

No bid will be received and deposited unless accompanied by a certified check upon a National or State bank, drawn and made payable to the order of the Comptroller of The City of New York, in the amount of six thousand dollars ($6,000.00), for the proper execution of the Contract.

At the above place and time the bids will be publicly opened and read. Pamphlets containing information for bidders, forms of bid and contract, specifications, contract drawings, requirements as to surety, etc., can be obtained in Room 1317, at the above address, upon application in person or by mail, by depositing the sum of five dollars ($5.00) in cash or its equivalent for each pamphlet. Within 30 days following the award of contract or rejection of bids, the full amount of such deposit will be refunded for each pamphlet submitted as a bid and a refund of four dollars ($4.00) will be made for each other pamphlet returned in acceptable condition. Arrangements will be made whereby prospective bidders desiring blueprints of the contract drawings for their own use may secure same, the cost thereof to be paid by them. For further particulars, apply at the office of the Chief Engineer at the above address.

IRVING V. A. HUIE, President, EDWARD C. MAGUIRE, HERBERT M. ROSENBERG, Commissioners, Board of Water Supply; BETTY COHEN, Acting Secretary.

SEARCHLIGHT SECTION

OFFICIAL PROPOSALS

Bids: April 18, 1955

24 Inch Water Supply Main and Appurtenances

FOR THE
BRADFORD CITY WATER AUTHORITY
BRADFORD, PENNSYLVANIA
CONTRACT TWO

Sealed proposals will be received at the offices of the Bradford City Water Authority, Bradford, Pennsylvania, until 2:00 P.M. E.S.T. April 18, 1955, at which place and hour they will be opened, for furnishing all necessary labor, materials and equipment, and performing all work for the construction of approximately 23,750 linear feet of 24 INCH WATER SUPPLY MAIN AND APPURTENANCES.

Alternate proposals are provided for bidding the 24 inch water supply main: (1) with mechanical joint, cast iron pipe with butterfly valves; (2) with plain end, cast iron pipe and Dresser couplings and butterfly valves; (3) with mechanical joint, cast iron pipe and gate valves; (4) with plain end, cast iron pipe and Dresser couplings and gate valves; (5) with steel pipe and Dresser couplings and butterfly valves; and (6) with steel pipe and Dresser couplings and gate valves. Included in all alternates is an automatic chlorination station.

The right is reserved to reject any or all proposals or to waive any informality in the proposals received and to accept any proposal deemed to be most favorable to the interest of the Bradford City Water Authority.

The Bradford City Water Authority reserves the right to take the bids under advisement for a period of thirty (30) days after the date of opening the bids before determining whether a contract shall be awarded and designating a successful bidder. Upon notification to the successful bidder, the Authority reserves the right, if necessary, to delay award of the contract for an additional thirty (30) days or a total of sixty (60) days after the date of opening of bids.

Each proposal must be accompanied by a bid bond or a money deposit in the form of a draft or certified check on a solvent bank, payable to the Bradford City Water Authority, in an amount not less than ten (10) per cent of the bid total. The deposits of bidders other than the one to whom the award is made will be returned. If a contract is not awarded within thirty (30) days after the date of opening the bids, the deposits of bidders other than the designated successful bidder will be returned. The successful bidder will be required to execute the Contract and furnish bonds and insurance within ten (10) days from the date of notice of award mailed to him. Upon execution of all Contract Documents his deposit will be returned. The amount of security will be one hundred (100) per cent of the Contract price.

Copies of the Contract Documents, including the Drawings and Spectifications, may be seen at the office of Gannett Fleming Corddry and Carpenter, Inc., 600 North Second Street, Harrisburg, Pennsylvania, or at the office of the Bradford City Water Authority, Room 6, City Hall, Bradford, Pennsylvania, on or after March 23, 1955; or they may be obtained at the offices of Gannett Fleming Corddry and Carpenter, Inc., on payment of Twenty-five ($25.00) Dollars for each set.

A refund, in full, will be made to actual bidders for the return of one set in good condition within ten (10) days after closing date for receipt of bids; refund for return of all other sets, in good condition, within the same period will be fifty (50) per cent of the deposit.

H. W. Loveland, Chairman
Bradford City Water Authority
Bradford, Pennsylvania

U. S. Government

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-4378) will be received at Sargent, Nebraska, until April 26, 1955, for furnishing labor and materials for earthwork and structures for Sargent Canal, station 595+00 to station 1109+78.67(bk) and Sand Canyon Wasteway, Middle Loup Division, Missouri River Basin Project, Nebraska. Location near Sargent, Nebraska, in Custer County. Principal items are 697,000 cu. yds. excavation; 20,000 cu. yds. backfill; 233,000 cu. yds. compacting embankments; 1,300 cu. yds. concrete in structures; 6,900 lin. ft. furnishing and laying standard strength and concrete pressure pipe; and other work. Completion time 550 days. For particulars, address Bureau of Reclamation, Sargent, Nebraska; or Building 53, Denver Federal Center, Denver 2, Colorado. W. A. Dexheimer, Commissioner.

OFFICIAL PROPOSALS

Bids: April 6, 1955

Section A Notice to Bidders

Lake George, New York
March 15, 1955

PROJECT: Warren County Airport—1000 Foot Runway Extension with Taxiway, Apron, and Additives—Turfing

1. Sealed Bids, in duplicate, subject to the conditions contained herein, will be received at the Board of Supervisors, Warren County, Lake George, New York until 11 A.M., E.S.T., April 6, 1955, and then publicly opened and read, for furnishing all labor and materials and performing all of the following work:

A. BASIC CONTRACT—
(1) Turfing for 1000 foot extension to existing N. S. Runway
(2) Turfing for extension of existing taxiway to end of runway extension.
(3) Turfing for 150 extension of existing apron.

B. ADDITIVES
(1) Additive No. 1—Turfing of South Overrun—N. S. Runway
(2) Additive No. 2—Turfing of Sunken Area—Stations 14+75 to 25+10—WNW-ESE Runway.

2. Copies of the plans and specifications may be obtained from the Board of Supervisors, Warren County, Lake George, New York, upon deposit of ten (10) dollars for each set requested. Checks or money orders should be made payable to the order of the County of Warren. The amount of the deposit will be remitted if the unused documents are returned in good condition not later than thrity days (30) after the opening of bids.

3. Plans and specifications may also be obtained at the office of:
Seelye, Stevenson, Value & Knecht
101 Park Avenue
New York 17, New York

4. A certified check or bid bond for a sum of not less than five (5) per cent of the total bid price will be required for each bid, payable to the order of the County of Warren.

5. The successful bidder will be required to furnish a performance bond and a payment bond in form and substance and with sureties approved by the Board of Supervisors, Warren County, each in the amount of fifty (50) per cent of the full amount of the contract awarded. Such bonds shall guarantee faithful performance of the contract and payment of all labor, materials, and equipment costs. The bond shall be executed by a duly authorized surety company.

6. The right is reserved, as the interest of the owner may require, to reject any or all bids, to waive technicalities and to advertise for new proposals, or to proceed to do the work otherwise when the best interests of the owner will be promoted thereby.

7. The right is reserved, as the interest of the owner may require, to revise or amend the plans and/or specifications prior to the date set for opening bids. Such revisions and amendments will be announced by addenda to all prospective bidders.

Date March 15, 1955 Lake George, New York

Bids: April 6, 1955

Washington Suburban Sanitary Commission

CONTRACT NO. 1523-W
FURNISHING AND DELIVERING
FIRE HYDRANTS

Sealed proposals for furnishing and delivering fifteen (15) 4½-foot; sixty-five (65) 5-foot; sixty-five (65) 5½-foot; twenty-five (25) 6-foot; twenty (20) 6½-foot; five (5) 7-foot and five (5) 7½-foot fire hydrants will be received in the office of the Acting Purchasing Agent, Room G-11, of the Washington Suburban Sanitary Commission, 4017 Hamilton Street, Hyattsville, Maryland until 10:30 A. M. Eastern Standard Time, Wednesday, April 6th, 1955 at which time and place they will be publicly opened and read.

Specifications may be obtained from S. Z. Salsberry, Acting Purchasing Agent of the Commission, Hyattsville, Maryland.

Raymond W. Bellamy, Chairman
L. S. Ray
J. Norman Ager
Commissioners

Attest:
James B. Parkhill
Secretary-Treasurer

OFFICIAL PROPOSALS

Bids: April 28, 1955

City of Elizabeth, New Jersey

NOTICE TO BIDDERS

Sealed proposals for the construction of Alterations and Additions to the Sewerage System will be received by the Board of Public Works of the City of Elizabeth, New Jersey, at a meeting to be held in the Council Chamber at the City Hall at 2:00 P.M., on Thursday, April 28, 1955, and then publicly opened and read. No proposal will be accepted after said hour. Proposals will be received on

CONTRACT 4—EASTERLY AND WESTERLY INTERCEPTING SEWERS, FORCE MAIN AND REGULATOR CHAMBERS ALONG THE EASTERLY AND WESTERLY INTERCEPTING SEWERS.

Information for Bidders, Proposal forms, specimen Contract, Plans, Specifications and other pertinent Contract Documents for any or all of the foregoing contracts may be examined at the office of Henry Kreh, Jr., Consulting Engineer, 433 N. Broad St., Elizabeth, N. J. Alexander Potter Associates, Associate Engineers, 50 Church St., New York, and at the office of the City Engineer, City Hall, Elizabeth, N. J., between the hours of 10 A.M. and 4 P.M. daily except Saturdays, Sundays and holidays and there obtained upon making a deposit of Fifty ($50.00) dollars, which will be refunded to bidders within thirty (30) days after the proposals are opened and upon return of the data undamaged. Half of this deposit will be refunded to non-bidders.

Extra copies of specifications may be obtained at the cost of Ten ($10.00) dollars each and extra sheets may be obtained at the cost of One ($1.00) dollar each which sums will not be refunded.

The work involves approximately 3,800 Lineal Feet of 60" Intrecepting Sewer; 500 Lineal Feet of 48" Intercepting Sewer; 450 Lineal Feet of 42" Intercepting Sewer; 920 Lineal Feet of 48" Sewer Force Main; 330 Lineal Feet of 60" Turnpike Undercrossing; 53 Lineal Feet of 60" Central Railroad of New Jersey Undercrossing; 243 Lineal Feet of Twin 36" Elizabeth River Undercrossing; 160 Lineal Feet of 42" Turnpike-Humboldt Avenue Undercrossing; Regulator Chambers complete.

Prospective bidders will be required to fill in answers in Questionnaire of Financial Statement which is authorized by State Law and which must be approved by the Board of Public Works before bidders are eligible for bidding. Questionnaire forms may be obtained at the office of the City Engineer.

No proposal shall be considered unless accompanied by a bid Bond of a corporation acceptable to the City, or a cashier's check or a certified check upon some good and acceptable bank, in the penal sum of 10% of the total amount of each bid as a guarantee that if the contract upon which the bidder has bid shall be awarded to said bidder, he will enter into a contract for the work and do so within the time stipulated in the Notice of Award for said work and failing to do so the bidder and surety shall forfeit to the City of Elizabeth, the amount of said Bid Bond or check. The Bid Bond shall be executed by the bidder and surety company on form furnished by the City.

A bidder to whom a contract is awarded shall furnish a Performance Bond on a surety company duly licensed in the State of New Jersey, in the sum of 100 per cent of the amount of the contract, conditioned upon the faithful performance of the terms of the contract.

The successful bidder will be required to comply with all State Laws governing the execution of Municipal contracts in the State of New Jersey.

The Board of Public Works reserves the right to reject any and all bids as it may deem best for the interests of the City of Elizabeth, and to waive any informality in the bid.

BY DIRECTION OF THE
BOARD OF PUBLIC WORKS.
GEORGE F. CUMMINGS
Clerk, Board of Public Works.
Dated March 31, 1955.

Read the Official Proposal Columns of ENGINEERING NEWS-RECORD This Week and Every Week

OFFICIAL PROPOSALS

Bids: April 6, 1955

Section A
Notice to Bidders

Lake George, New York
March 15, 1955

PROJECT: Warren County Airport—1000 Foot Runway Extension with Taxiway and Apron,—Electrical

1. Sealed Bids, in duplicate, subject to the conditions contained herein, will be received at the Board of Supervisors, Warren County, Lake George, New York until 11 A.M., E.S.T., April 6, 1955, and then publicly opened and read, for furnishing all labor and materials and performing all of the following work:

A. BASIC CONTRACT—
(1) Lighting for 1000 foot extension to N-S Runway
(2) Lighting for New 2400 foot Taxiway
(3) Lighting for Existing Taxiway
(4) All necessary and required work in the existing Administration Building for furnishing, installing and connecting new regulators for three (3) taxiway circuits including: (a) source of supply from existing building source; (b) Connections between new regulators and existing airport control panel for control of same and (c) feeders from regulators to taxiway lighting equipment in field

2. Copies of the plans and specifications may be obtained from the Board of Supervisors, Warren County, Lake George, New York, upon deposit of ten (10) dollars per set requested. Checks or money orders should be made payable to the order of the County of Warren. The amount of the deposit will be remitted if the unused documents are returned in good condition not later than thirty days (30) after the opening of bids.

3. Plans and specifications may also be obtained at the office of:
Seelye, Stevenson, Value & Knecht
101 Park Avenue
New York 17, New York

4. A certified check or bid bond for a sum of not less than five (5) per cent of the total bid price will be required for each bid, payable to the order of the County of Warren.

5. The successful bidder will be required to furnish a performance bond and a payment bond in form and substance and with sureties approved by the Board of Supervisors, Warren County, each in the amount of fifty (50) per cent of the full amount of the contract awarded. Such bonds shall guarantee faithful performance of the contract and payment of all labor, materials, and equipment costs. The bond shall be executed by a duly authorized surety company.

6. The right is reserved, as the interest of the owner may require, to reject any or all bids, to waive technicalities and to advertise for new proposals, or to proceed to do the work otherwise when the best interests of the owner will be promoted thereby.

7. The right is reserved, as the interest of the owner may require, to revise or amend the plans and/or specifications prior to the date set for opening bids. Such revisions and amendments will be announced by addenda to all prospective bidders.

Date March 15, 1955 Lake George, New York

Bids: April 6, 1955

Section A
Notice to Bidders

Lake George, New York
March 15, 1955

PROJECT: Warren County Airport—1000 Foot Runway Extension with Taxiway, Apron, and Additives —Clearing, Grubbing, Grading Drainage, and Paving.

1. Sealed Bids, in duplicate, subject to the conditions contained herein, will be received at the Board of Supervisors, Warren County, Lake George, New York until 11 A.M., E.S.T., April 6, 1955, and then publicly opened and read, for furnishing all labor and materials and performing all of the following work:

A. BASIC CONTRACT
(1) Clearing and Grubbing including clearing of trees in approach zone for 1000 ft. runway extension.
(2) Grading, drainage and paving for 1000 ft. extension to existing N. S. Runway.
(3) Grading, drainage and paving for extension of existing taxiway to end of runway extension.
(4) Grading, drainage, and paving for 150 ft. extension of existing apron.

B. ADDITIVES
(1) Additive No. 1—Improvement of South Overrun—N. S. Runway.
(2) Additive No. 2—Reconstruction of Sunken Area—Stations 14+75 to 25+10—WNW-ESE Runway.

2. Copies of the plans and specifications may be obtained from the Board of Supervisors, Warren County, Lake George, New York, upon deposit of ten (10) dollars for each set requested. Checks or money orders should be made payable to the order of the County of Warren. The amount of the deposit will be remitted if the unused documents are returned in good condition not later than thirty days (30) after the opening of bids.

3. Plans and specifications may also be obtained at the office of:
Seelye, Stevenson, Value & Knecht
101 Park Avenue
New York 17, New York

4. A certified check or bid bond for a sum of not less than five (5) per cent of the total bid price will be required for each bid, payable to the order of the county of Warren.

5. The successful bidder will be required to furnish a performance bond and a payment bond in form and substance and with sureties approved by the Board of Supervisors, Warren County, each in the amount of fifty (50) per cent of the full amount of the contract awarded. Such bonds shall guarantee faithful performance of the contract and payment of all labor, materials, and equipment costs. The bond shall be executed by a duly authorized surety company.

6. The right is reserved, as the interest of the owner may require, to reject any or all bids, to waive technicalities and to advertise for new proposals, or to proceed to do the work otherwise when the best interests of the owner will be promoted thereby.

7. The right is reserved, as the interest of the owner may require, to revise or amend the plans and/or specifications prior to the date set for opening bids. Such revisions and amendments will be announced by addenda to all prospective bidders.

Date March 15, 1955 Lake George, New York

EMPLOYMENT

REPLIES (Box No.): Address to office nearest you
NEW YORK: 330 W. 42nd St. (36)
CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)

POSITIONS VACANT

WANTED — STRUCTURAL Steel estimator. Must be experienced in taking off structural steel and miscellaneous iron. Quantities from architects drawings. Permanent position. City Iron Works, 350 New Park Avenue, Hartford, Conn.

PITTSBURGH STEEL Warehouser has opening for man experienced in pricing and selling hot and cold rolled sheets; experience in shear line operation, shearing blanks, etc. a must. P-5810, Engineering News-Record.

YOUNG OFFICE engineer to handle details, drafting, estimating, etc. for smaller Ohio contractor. Submit resume and salary desired. P-5873, Engineering News-Record.

ENGINEERS, DESIGNERS, engineering draftsmen for established consulting firm designing sewers, pumping stations, sewage treatment plants, water supply systems, etc. Structural and hydraulic design, hydraulic computations, specifications. Location, New York State. Give full particulars. Our employees know of this advertisement. P-5856, Engineering News-Record.

ROAD, BRIDGE general supt. required for multi-million dollar project, Eastern U. S. Excellent opportunity for right man. Please submit educational background, experience, references, salary desired. P-5887, Engineering News-Record.

ENGINEER OR Chief draftsman experienced in reinforcing steel detailing and quantity take-off required by fast growing reinforcing fabricator. Excellent salary and opportunity for quick advancement for aggressive man. Send resume to Brocker Mfg. & Supply Co., York, Pennsylvania.

STRUCTURAL STEEL Sales Engineer a nationally known manufacturer of steel products has an opportune opening in sales for the right man. The man we want must be a graduate structural engineer or its equivalent. He should be between 35 and 45 years of age and have at least five (5) years experience in selling radio, television, and transmission towers or similar fabricated products. He must have a proven successful sales record. The products he will sell are nationally advertised and his opportunities are unlimited. Salary open, commensurate with experience and ability. Our staff knows of this advertisement. All replies will be held in strictest confidence. Send complete resume to P-5806, Engineering News-Record.

WANTED: ESTIMATOR and material take-off man. Must be experienced in general building construction. Write stating qualifications, availability, and salary expected. Post Office Box 326, Cumberland, Md.

ESTIMATOR AND field superintendent for sewer construction, Midwest, salary and percentage of profits. Give resume of experience and salary expected in first letter. P-5982, Engineering News-Record.

WANTED: ENGINEER estimator by Midwest Construction Company doing highway, airbase, asphalt and concrete paving & utility work. Prefer man between 25 and 45. Have good opportunity for right man. Give full particulars. P-5978, Engineering News-Record.

POSITIONS VACANT

WANTED: STRUCTURAL steel detailers. Please state experience and salary desired with complete resume. Berger Steel Company, Inc., Lafayette, Ind.

WANTED: FIELD and office engineer for work in North Carolina. Must be qualified to perform precise city surveys, stake-out of streets, water, sewer, and other general field engineering work. Office qualifications shall include ability to design and perform all necessary calculations for all types of survey work. Please write giving qualifications and expected salary. P-6012, Engineering News-Record.

WANTED: SUPERVISING Engineer for general engineering concern in Southeastern area. Must be qualified to take over complete supervision of all field work, design, and office calculations. Please write giving qualifications and expected salary. P-6014, Engineering News-Record.

(Continued on page 118)

DISTRICT CONSTRUCTION MANAGER

able to solicit, price, and run local process construction work for petroleum and chemical contractor on salary and incentive basis. State experience, education, age, and district in which best qualified to operate.

P-5965, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

SPECIFICATION WRITERS

ONE prepare mechanical and electrical specifications and ONE prepare civil and structural specifications both for dam and hydroelectric work. Excellent opportunity for qualified men on New York City staff of international consulting engineer organization. Complete detailed resumes with current references, earnings record and salary requirements to

P-5980, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

ENGINEERS-CIVIL
Bridge Designers & Draftsmen

For permanent work in N.J. & Metropolitan N.Y. State age, experience & salary requirements in 1st letter.

P-6023, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

SALES ENGINEERS

Middle Atlantic Division of large company has openings for sales engineers in Baltimore; Harrisburg, Pennsylvania; and Trenton, New Jersey to handle promotion and sale of fabricated metal products to engineering and construction markets. Ages 24 to 30. Engineering degree necessary.

P-4753, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

ESTIMATOR

Experienced in sewerage & water treatment plant costs and subsequent administration of construction. Unusual oppty with progressive growing concern.

Write Box 308, Circleville, Ohio

POSITIONS VACANT

(Continued from preceding page)

ESTIMATOR—EMPLOYMENT in refinery and chemical plant construction work for Chicago office. Write stating qualifications. Previous employment, availability and salary expected. P-6017, Engineering News-Record.

DETAILERS—TWO experienced steel detailers for permanent position with established fabricator of industrial buildings. Submit small snapshot, sample drawing, if available, and full particulars including experience and salary expected. Islands Welding & Supply Co., P. O. Box 94, Honolulu 10, Hawaii.

POSITIONS WANTED

ELECTRICAL SUPERINTENDENT. Experienced in overhead and underground power distribution. High voltage transmission lines available April 15. Will go anywhere. PW-5770, Engineering News-Record.

CONTRACTORS ASSISTANT or construction company manager. Thorough knowledge of estimating, general supervision, costs and management, 25 years with general contracting organizations on buildings, engineering work and government projects. California, southwest or mid-west preferred. PW-5836, Engineering News-Record, 520 N. Michigan Ave., Chicago 11, Illinois.

NEW YORK client contact—registered architect will represent non-metropolitan architects or engineers as client or consultant contact. Diversified domestic and foreign experience. PW-5858, Engineering News-Record.

CONSTRUCTION SUPERINTENDENT, for Nike Rocket Sites. Just completed first site in country, for actual operation. Supervised all work, purchased all materials. Have connections to purchase approved government material, at minimum prices. Fifteen years experience; can supply references. Ready for immediate employment. Willing to travel. PW-5881, Engineering News-Record.

CHIEF ENGINEER, graduate mechanical and structural, employed, desires permanent position in modern company, engineering, fabricating, or construction. Broad training and experience. Bona fide principles only reply, please! PW-5863, Engineering News-Record.

ESTIMATOR—EXPERIENCED in all phases of competitive bidding on buildings (pricing, purchasing, etc.) to 10 million. C.E. degree, age 35, prefer Southwest. PW-5868, Engineering News-Record.

ACCOUNTANT: FIELD clerk: costs material controls: varied construction (exp. Gov't.) & private projects. PW-5889, Engineering News-Record.

CONSTRUCTION MANAGER—chief estimator age 51 experienced in all types construction —field control cost control—purchasing—subcontracts—client relations currently employed wanting other connection. PW-5901, Engineering News-Record.

CIVIL ENGINEER, Graduate, Age 34, 9 yrs. experience 3½ yrs. in field, 5½ yrs. in office. Exp. in field supervision, design, drafting, estimating, costs quantity take-off; also reinf. concrete field and office, and some prestressed concrete design. Top references given. Prefer N. Y. area. Available April 15th. PW-6026, Engineering News-Record.

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(Classified Advertising)

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BUSINESS: :USED OR RESALE

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SEND NEW ADVERTISEMENTS to N. Y. office, 330 W. 42nd St., N. Y. 36, for April 14th issue, closing April 4th.

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The advertising rate $30.50 per inch for all advertising appearing on other than a contract basis. Contract rate quoted on request.

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POSITIONS WANTED

CONSTRUCTION EXECUTIVE, available as project manager, on large operation, chief estimator for large organization or in other executive position where scope warrants employment of top man, thoroughly experienced on all types of construction and in every phase of general contracting. PW-5956, Engineering News-Record.

COST AND Office Engineer (27) six years industrial construction wants chance to help contractor save time and money. PW-5238, Engineering News-Record.

CONTRACTORS CHIEF Engineer—age 52 wide top flight experience—12 years heavy and 18 years bldgs—much experience competitive bidding public work. Have for many years had full responsibility of bidding & job management. Have a very successful background. PW-5655, Engineering News-Record.

RESIDENT ENGINEER or supt. of construction on water or sewage plants and systems, nicipal and public utility construction and Graduate Engineer, 20 years experience in, municipal and public utility construction and operation. Married, available immediately. Write P. O. Box 261, Trenton, New Jeersey.

INDUSTRIAL ENGINEER 37 graduate 16 yrs. wide exp. design estimating & dept. supervision piping, heating, ventilating, mtl handling, mach. design, plant layout, gen. construction seeks responsible relocation. PW-5991, Engineering News-Record.

CONSTRUCTION SUPERINTENDENT long experience in most phases of construction—start to finish, excepting roads & bridges. N Y City & vicinity. PW-5988, Engineering News-Record.

CARPENTER FOREMAN—25 years experience in construction—various types. Read plans. Practical engineer. Can handle men. N Y City & vicinity. PW-5989, Engineering News-Record.

PURCHASING ENGINEER, purchasing agent or chief expeditor. Four years A.E.C. experience. Q. cleared, experienced eng. corps, trans. corps, air corps, and navy contracts. Familiar with material take-offs, planning, scheduling and material control. Experienced co-ordinator between Gov. agency, architect, purchasing, engineering, planning and scheduling. Free to travel. Available May 1st. PW-5967, Engineering News-Record.

STRUCTURAL ENGINEER, 35, 4 years detailer checker with fabricator, 7 years designer buildings, conveyors, bridges, with engineers and heavy industry. 2 years own practice detailing and designing structural steel desires contact medium size fabricator. PW-5959, Engineering News-Record.

EXPERIENCED ARCHITECTS field superintendent available on short notice. PW-5968, Engineering News-Record.

CHIEF ESTIMATOR, heavy construction. Broad experience in New York and vicinity, field and office in estimating, bid preparation, costs, sub-contract negotiation, includes foundations, bridges, excavation, concrete, tunnels, subways, dams, etc. Good opportunity for progressive contractor. Reasonable availability. PW-5961, Engineering News-Record.

CIVIL ENGINEER, 15 years field experience, industrial and commercial buildings desires position in office of general contractor, estimating, purchasing, etc. prefer midwest location. PW-5958, Engineering News-Record.

AVAILABLE

Heavy construction supt. or Engineer would like to make change. 20 years on highways, dams, military work. Fluent Spanish and willing to travel.

PW-5955, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

POSITIONS WANTED

CONSTRUCTION SUPERINTENDENT: Over 25 years experience supervising the construction of industrial & commercial bldgs; schools, churches, hospitals and housing projects. Available soon for position of similar responsibility with progressive organization, prefer within 250 miles of N.Y.C. PW-6013, Engineering News-Record.

ADMINISTRATIVE ENGINEER, P.E., water supply, chemical, hydroelectric and industrial plants. Structural, hydraulic mechanical and related problems. Past affiliations consulting and industrial firms. Make your job easier by making mine tougher. Available April. Will relocate. Thirty years experience at your disposal. PW-6008, Engineering News-Record.

REG. CIVIL Engr., 30, married. Exp: U.S. Eng. —found. design & soils. Hvy. const.—field eng. found. & erecting. Desires position with progressive consulting engr. firm located S.W. U.S. PW-6005, Engineering News-Record.

CONSTRUCTION SUPERINTENDENT and engineer. Reg. P.E. in N. J. 29 yrs old experienced in highway, cofferdams, piles, paving, small and large industrial buildings, union bricklayers card. B.S.C.E. Not a "swivel chair" superintendent. PW-6001, Engineering News-Record.

CONSTRUCTION MANAGER desires to manage general contractor's branch office with full responsibility, corresponding authority. Age 39, twenty years experience through ranks. Understand estimating, pricing, costs, contracts, personnel and labor relations, field and office administration. Require $12,000.00 annually. Will sign contract. Available thirty days notice. PW-6004, Engineering News-Record.

CONSTRUCTION ENGR.—BSCE, age 28, married 3 yrs experience heavy construction: highway, bridges, and field survey. Desires position with contractor on foreign project. PW-6028, Engineering News-Record.

SPECIAL SERVICES

Appeals Service: Government Construction Contractors usually have questions of fact under dispute. I can be of service to you whether you have only one question or the entire processing of appeals. Your dispute is my business. SS-5062, Engineering News-Record.

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Long Established Business, survey and realty subdivision. Fast growing New Jersey suburb, excellent net returns to qualified licensed P.E. BO-5943, Engineering News-Record.

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Complete Building Estimators Course, also Building Labor Calculator for practicing estimators. Thirty-fourth year serving the building industry. For free trial and all particulars write:

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Learn latest methods to organize and run work. Prepare for the top jobs.

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For office work on long-term highway design projects. Desire adequate experience or training including alignment and profile computations, interpretation of aerial photographs, geometric design of interchanges and associated work.

Employee Benefit and Retirement Plan, paid vacations and holidays, sick leave. Modern, air conditioned offices in downtown St. Louis. Please write fully to or inquire at

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For company's Equipment Engineering Division located in New York City. Minimum five years' experience designing, selecting and specifying all types of maintenance and shop equipment.

Must know general machine shop practice, garage operations, engine rebuilding, power plant operations, refinery and oil field maintenance equipment sufficiently to be capable of preparing specifications for manufacture, economic and engineering analysis for selection and guidance for tests and inspection of purchased equipment.

Write giving full particulars regarding personal history and work experience. Please include telephone number.

Recruiting Supervisor, Box 13

ARABIAN AMERICAN OIL COMPANY
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Permanent Openings Available at Our Cleveland, Ohio Offices for qualified DESIGNERS experienced in:

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WRITE—giving complete details of experience, education, age, etc.—to:

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Offers Opportunities to Qualified Engineers and Draftsmen

Positions are open to capable engineers and draftsmen who can design and/or prepare plans and specifications for complete industrial plants, all related structures, and building equipment falling within the following categories:

DESIGNERS—Office buildings, laboratories, and industrial buildings. Positions require those possessing vision and creativeness.

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Assignments are in connection with our long-established offices located on the East coast and Midwest areas. Desirable working conditions, established vacation and sick leave plans, also paid holidays.

Full particulars as to education, experience, and compensation desired should be given in first letter.

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Wanted by City of Ferndale, Michigan. College or University graduate. Salary dependent on training and experience. Previous experience in Municipal Engineering not required.

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Wanted by City of Ferndale, Michigan. 2 years college or university training and not less than 2 years practical engineering experience. Salary dependent on training and experience.

Forward applications to:

Roy F. Goodspeed,
Director of Public Works & Engineering
CITY OF FERNDALE
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Graduate Civil or Sanitary Engineer with at least ten years experience in sanitary engineering.

Excellent opportunity for engineer capable of working with clients and supervising projects in report, design and construction stages.

Permanent position, liberal benefit plans and good working conditions.

Location, Middle West. Submit complete information on education, experience and salary requirements to:

P-5766, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

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PERMANENT POSITIONS DEPENDING ON EXPERIENCE AND ABILITY
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INCLUDE EDUCATION, EXPERIENCE, REFERENCES AND SALARY EXPECTED IN APPLICATION LETTER

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To represent American firm of consulting engineers in Middle East, and supervise construction of concrete or rockfill dam, diversion tunnel, and permanent village, also supervise exploratory drilling program. Excellent salary plus furnished house and medical care free for self and family. Approximately a 4 to 5 year term. Send resume and specify salary required.

P-5984, Engineering News-Record
520 No. Michigan Ave., Chicago 11, Ill.

STRUCTURAL ENGINEER

We want a capable and experienced steel man, one with sound structural engineering background, solid experience in detailing, with the ability to train detailers, and a working knowledge of shop operation. This man should be between 35 to 45 years of age and probably a man presently employed by a medium or large fabricator—who sees little opportunity of further advancement, and who has a strong desire eventually to own and operate his own business. We will consider selling a part interest of our operation with provision for increased ownership from profits. Salary $7500.00 per year. Location in Missouri River Valley.

P-6015, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

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For long range industrial program in an established consulting office.

Must be experienced and capable of checking design drawings. Draftsmen experienced in structural steel detailing.

Send complete resume of experience.

SAMBORN, STEKETEE & ASSOCIATES
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TOLEDO 4, OHIO

MECHANICAL ENGINEER WANTED

Graduate Mechanical Engineer experienced in pulp and paper maintenance for large progressive mill in Middle Atlantic States. Under 35 years of age. Good salary with excellent opportunity for advancement. Give detailed resume of experience.

P-5431, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

ESTIMATOR

Experienced in process equipment and piping costs for chemical plant and refinery construction. Position offers good future with progressive Penna. firm. Send resume to—

J-65, P. O. Box 3575
Phila., 22, Pa.

MECHANICAL ENGINEER WANTED

Graduate Mechanical Engineer experienced in the operation of Fourdrinier paper machines, refining and related equipment for large progressive mill in Middle Atlantic States. Under 35 years of age. Good salary and excellent opportunity for advancement. Give detailed resume of experience.

P-5434, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

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Complete 1¾ Yd. Shovel Front for L80 Lorain—Unused
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L-G #14-41B — Bucyrus-Erie Caterpillar Steam Crane, 75′ boom Serial #10976. Rebuilt 1948 by H. O. Penn Machinery at a cost of $8,117.00. New International Vertical Firetube Boiler (150# W.P.) and Oil Burning Equipment installed 1948. Presently working — Excellent Condition. **$11,000.00 f.o.b. our yard.**

L-G #15-41B Bucyrus-Erie Caterpillar Steam Crane, 65′ Boom—10′ Extension, Serial 4761. Rebuilt 1947 by H. O. Penn Machinery at a cost of $7,175.89. Installed New Oil Burning Equipment and New International Vertical Tube Boiler (150# W.P.) in 1948. Excellent condition. **$11,000.00 f.o.b. our yard.**

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Ransome Model 27 E, Serial 11-282, Single Drum with Buda Power. Has been used very little. Price $1675.00.
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W-5765, Engineering News-Record
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CARNEGIE Length	MP-101 Pcs.	MP-102 Pcs.	TEES Pcs.
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60-50 ft.	210	5	18
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Clamshell Buckets—⅜, ½, ⅝, ¾, 1 Yard

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Lorain Models MC-414 and 416 Moto-Cranes, 20 ton capacity.
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Rear Dump Trucks

4—Model 8TD 22 Ton, Powered with 275 H.P. Cummins Diesel Engines. Price $11,000.00 Each.

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All above equipment in first class operating condition.
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1— 75-HP DD 8000 SLP
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LOCOMOTIVE CRANE: 25 ton capacity, standard gauge, gasoline powered, cast steel trucks, air brakes, with or without 1-¼ yd. Williams clam shell bucket, thoroughly modern, excellent condition. Located Minnesota. For sale or rent.

LOCOMOTIVES: 2—65 ton diesel electric, standard gauge, thoroughly modern, excellent condition. For sale or rent.

MINE HOISTS: Single and double drum, 100 to 1500 H.P. with all electrical equipment. Complete specifications, drawings, and photos available.

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300 H.P., 435 RPM. 600 H.P., 710 RPM.
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1—¾ yd. Shovel Front Only—New (For Lorain 41)
1—¾ yd. Lorain Shovel Model 41—Gas 3 Way Combination. Recently Rebuilt
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2—2 yd. 44B Bucyrus-Erie Shovels

FOR SALE OR RENT

7—27 FD End Dump Euclids—Good Condition. Practically New Rubber.

Tuckahoe Construction Co., Inc.
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Phone: WOdbine 1-4990-1

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Barber-Greene Co. 105
Bayley Co., The Wm. 33
Bethlehem Steel Co. 42, 43
BIF Industries Inc. 89
Brunner & Lay Co. 90
Bucyrus-Erie Co. 7
Bullard Co., E. D. 52

Cash Iron Pipe Research Assoc., Inc. .. 10, 11
Caterpillar Tractor Co. 30, 31
Cement Gun Co. 90
Chain Belt Co. 56
Chicago Bridge & Iron Co. ..... 2nd Cover
Chrysler Corp., Industrial Engine Div. 3
Cleveland Trencher Co. 75
Clow & Sons, James B. 58
Clyde Iron Works, Inc. 81
Contractors Svc. Ltd. 77
Cotta Transmission Co. 94

Deere Corp., John 72
Dewey & Almy Chemical Co., Div. of W. R. Grace & Co. 70
Dixie Cup Co. 68
Dravo Corp. 62

Euclid Div. G.M.C. 97

Flexible Road Joint Mach. Co. 54, 55
Fruehauf Trailer Co. 66

Gahagan Constr. Corp. 86
Gateway Erectors, Inc. 92
Griffin Wellpoint Corp. 59
Grinnell Co., Inc. 93
Gulf Oil Corp. 4, 5
Gunite Concrete & Constr. Co. 96
Gunite Constr. Corp. 94
Gurley, W. & L. E. 76

Harnischfeger Corp. 53
Hartford Fire Ins. Co. 78
Hartford Accident & Indemnity Co. 78
Hayward Co. 88
Hyatt Bearings Div., G.M.C. 111

Joy Mfg. Co. 48

Kerrigan Iron Works Inc. 74
Kinnear Mfg. Co. 88
Koehring Co., The 108, 109

Larsen Products Corp. 92
LeRoi Co. 14
Link Belt Speeder Corp. 20
Lock Joint Pipe Co. 16
Longyear Co. 94
Lufkin Rule Co. 94

Macomber, Inc. 69
Mahon Co., R. C. 15
Marietta Concrete Corp. 85
Mayo Tunnel & Mine Eqpt. Co. 96
McKiernan-Terry Corp. 32
McKinney Drilling Co. 104
Miller Electric Mfg. Co. 84
Moretrench Corp. 44

National Gypsum Co. 41

Omega Machine Co. 89
Owen Bucket Co. 112
Owens Corning Fiberglas Corp. 6

Pittsburgh-Des Moines Steel Co. 71

Ramset Fasteners, Inc. 73
Raymond Concrete Pile Co. 9
Reflectal Corp., Div. of Borg Warner Corp. 38
Robertson Co., H. H. 60, 61
Rule Site Co. 104

Sauerman Bros., Inc. 87
Sprague & Henwood, Inc. 84
Staedtler Inc., J. S. 2
Summitville Tiles Inc. 28
Superior Concrete Accessories 65

Timken Roller Bearing Co. ..... 4th Cover

U. S. Pipe & Foundry Co. 106
U. S. Steel Corp. 82, 83
Universal Manufacturing Co. 64
Universal Sewer Pipe Corp. 47

Viber Co. 79

Waco Mfg. Co. 86
Webrib Steel ..... 3rd Cover
Wickwire Spencer Steel Div., Colorado Fuel & Iron Corp. 29

Yeomans Brothers Inc. 63

Professional services . . . 124, 125, 126

SEARCHLIGHT SECTION

(Classified Advertising)

H. E. Hilty, Mgr.

Employment 117, 118, 119
Educational 118
Notices
Proposal 113-117
Equipment
(For Rent, Sales, Wanted) .. 120-123

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EDITORIALS

No Better Road Plan Yet

OPPONENTS of the President's road plan so far are woefully short on counter proposals that meet the road problem squarely, or offer even a fair chance for success. From the hearings before the Senate subcommittee on roads have come numerous criticisms of different parts of the President's plan as embodied in the Administration bill, but almost nothing that can be called constructive.

In this connection the testimony of Senator Byrd was particularly disappointing because he, too, chose criticism as his contribution, without suggesting any alternative that would provide the nation with the roads it so desperately needs. He expressed fear that federal financing of the interstate system would mean federal control. He called bond financing outside the federal budget "financial legerdemain." And he thought it was wrong to pledge the federal gas tax to a "single specified purpose." What is the alternative? Continued road inadequacy? Unfortunately Senator Byrd did not say.

To date, therefore, it must be concluded that no one has a better road plan to offer than the one the Clay Committee developed for the President. Unless Congress can come up with something better, it should pass the Administration bill with whatever constructive changes it deems desirable.

Regional Resource Surveys

AFTER A FINAL PUBLIC HEARING in Boston, the report of the New England-New York Inter-Agency Committee on natural resources in a seven-state area has gone to Washington. The net result of an exhaustive four-year study, in its present form it fills 45 oversized volumes totaling 200 pounds of printed paper. This comprehensive state-federal survey has been called "a $4 million boondoggle."

But was it a boondoggle? Neither the purpose of the survey, nor the usefulness of the data collected support any such derogatory description.

When he set up the original committee in 1950, President Truman listed water supply, flood control, pollution control, hydro power, land management, forest management, fish and wildlife conservation, mineral resources, recreational resources and insect control as subjects for study over 26 river basins of the region. He set up NENYIAC with representation from the Army Engineers, the Federal Power Commission, Federal Security Agency (now the Department of Health, Education and Welfare) and departments of Interior, Agriculture and Commerce. Seven state governors were invited to appoint state representation, and this they did, somewhat reluctantly. The committee was charged by President Truman with reporting recommendations for development, utilization and conservation of the region's land and water resources. Studies got off to a slow start, but wound up with remarkable federal-state accord.

A survey similar to that of the northeastern region has since been begun and soon will be done by the eight-state Arkansas-White-Red Basins Inter-Agency Committee (ENR Apr. 8, 1954, p.30). Scope of this study has been about the same as the New England-New York work. Both will soon be available.

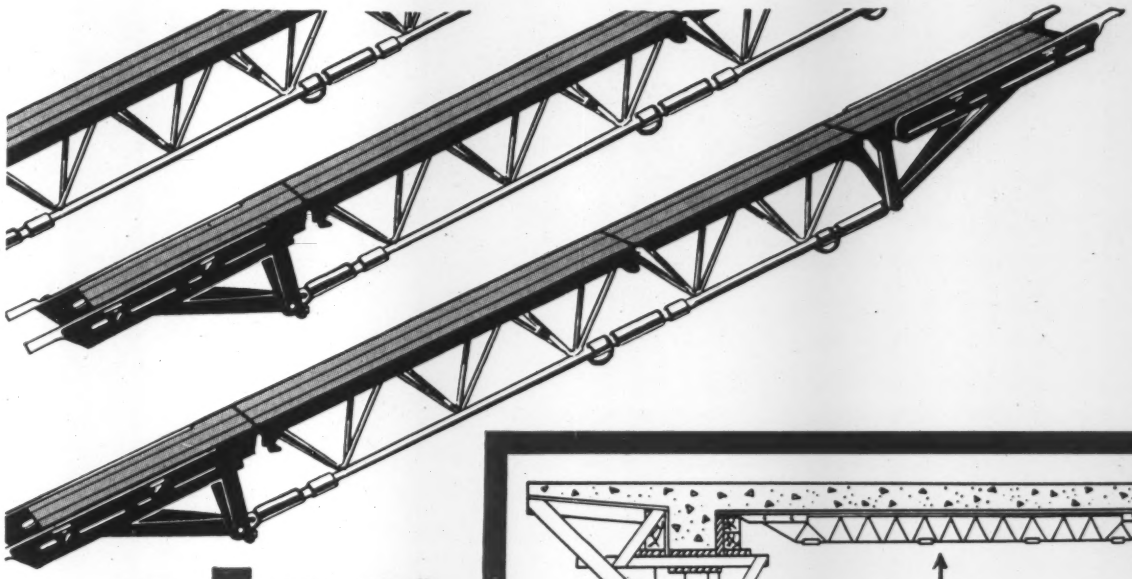
Question now is what use will be made of these massive reports. The NENYIAC report is in the hands of the Secretary of the Army (the Corps of Engineer representative has acted as committee chairman from the start). He will ask the seven state governors for comment on the report, then by June 30 it will go to President Eisenhower, who in turn will direct that it be sent to Congress. Congress will decide on a $50,000 to $60,000 appropriation for publication. Only by publication of this and the southwestern basin report to follow along in July can full use and value from the completed surveys be assured.

These are not documents of academic interest. They can be the tools which finally will shape the kind of regional planning of land and water use so badly needed throughout the U. S. Made available to those who will forge the future of the regions involved, these reports can provide the information on which vital decisions will be made. As far as the future economic life of the regions studied is concerned, the work of these two inter-agency committees—far from being a boondoggle—could be a boon to intelligent, regional advance, based on broadest, best use of natural resources.

World Health Day

APRIL 7 IS WORLD HEALTH DAY, and while designation of days and weeks of the year for special recognition of things has been grossly overdone, the occasion for pointing out the significance of world health to engineers and constructors is welcomed. Not only is public health very largely an engineering problem (this year's theme for World Health Day is "Clean water means clean health"), but it is also the key to economic growth and development which also of course generate engineering and construction activity.

Providing clean water and destroying mosquitos—the number one and two sanitary engineering tasks of the UN's World Health Organization—are immediate, yet minute tasks when compared with the potentially vast engineering and construction work that would be required by a world made measurably more healthy. Today's fields for WHO workers are tomorow's world markets for construction. All construction has a big stake in making this a healthier world.



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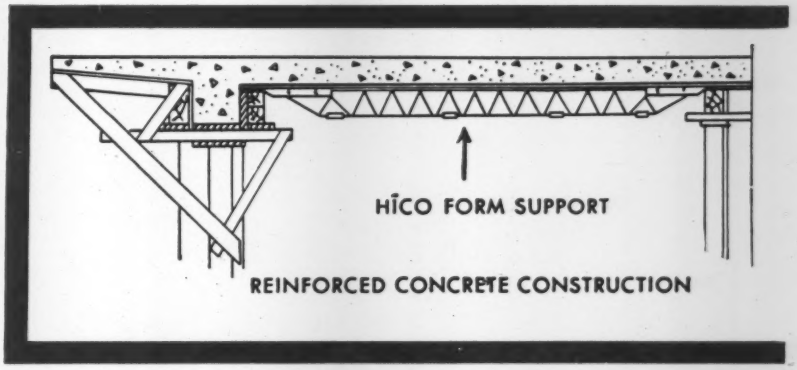

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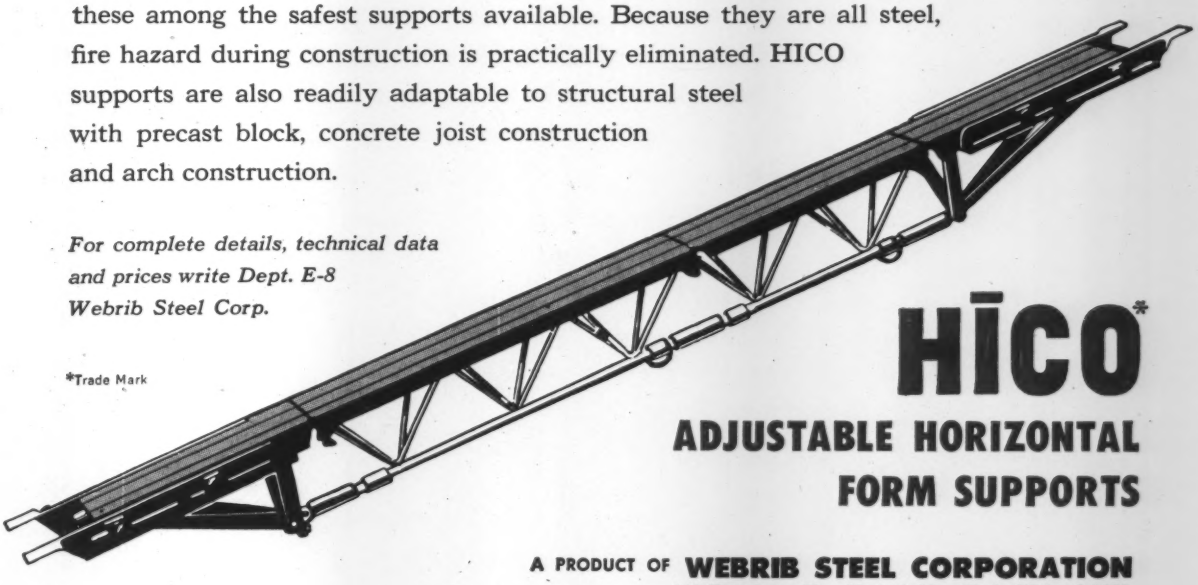

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Always specify Timken bearings in the equipment you build or buy. Look for the trade-mark "Timken" stamped on every bearing. The Timken Roller Bearing Company, Canton 6, Ohio. Canadian plant: St. Thomas, Ontario. Cable address: "TIMROSCO".

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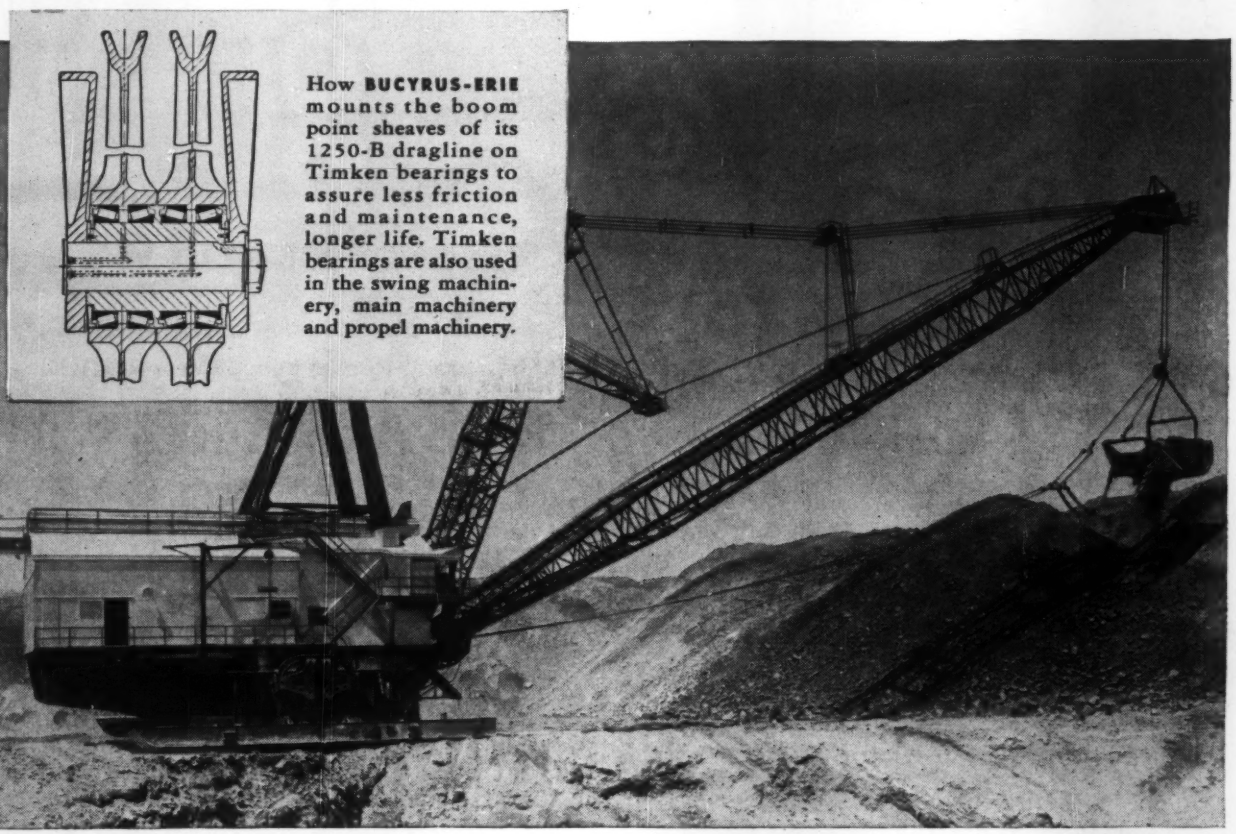
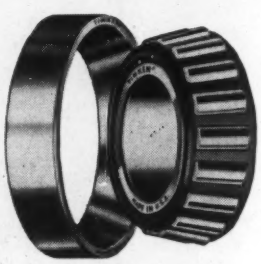


How **BUCYRUS-ERIE** mounts the boom point sheaves of its 1250-B dragline on Timken bearings to assure less friction and maintenance, longer life. Timken bearings are also used in the swing machinery, main machinery and propel machinery.



TIMKEN

TRADE-MARK REG. U. S. PAT. OFF.

TAPERED ROLLER BEARINGS

WE MAKE OUR OWN STEEL

The special grade alloy steel which gives Timken bearings their strength and resistance to wear is made in our own steel mills.

The Timken Roller Bearing Company is the acknowledged leader in: 1. advanced design; 2. precision manufacturing; 3. rigid quality control; 4. special analysis steels.

NOT JUST A BALL NOT JUST A ROLLER THE TIMKEN TAPERED ROLLER BEARING TAKES RADIAL AND THRUST LOADS OR ANY COMBINATION